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CASSELL'S HEALTH HANDBOOKS

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# HEALTHY BABIES

Their Feeding and Management

By

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## PREFACE

THIS book is addressed to all those concerned with the health and happiness of babies. While the book is primarily intended for parents and nursery nurses it is hoped that the discussion of the practical details of infant care may also be of use to medical practitioners and students, trained nurses, midwives, health visitors, and teachers of hygiene.

We should like to thank Sir Humphry Rolleston for his kindness in reading the manuscript and the proofs, and for his encouragement and valuable criticism.

N. O. R.

A. D. B.



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**Breast-Feeding.**

# HEALTHY BABIES

## INTRODUCTION

THE earliest stages of the life of the child are the most decisive for its health and happiness. Influences experienced before birth and during the first few months of life have a profound effect on the development of the physical and mental qualities.

The environment of the young infant consists of such details as its clothes and bedding, the warmth and airiness of its room and the amount of light, sound and vibration to which it is exposed. It is also made up of daily events, such as feeding, bathing, being picked up and carried, put into its cradle or taken out of doors. For all of these the mother and nurse are responsible and the baby depends entirely on their care.

A good mother is successful in providing the best conditions of life for the growing baby, owing to her understanding of the child and its needs. She can recognize the meaning of every expression on its face and every movement and sound it makes. She has the right manner and touch in handling it, realizing the effect of anything she does. Most parents and nurses are gifted with an instinctive sympathy for children; and this is essential if they are to care for them in the best way. Some young mothers and nurses at the beginning of their career may have little of this feeling to guide them. Fortunately, the companionship of a baby usually arouses affection and interest very



soon, and an understanding of children develops further as the family grows.

The mother who is allowed to have her baby near her from the moment it is born learns a great deal from simply watching it as it lies in its cradle. She must be allowed to deal with the baby herself as soon as she is well enough and has learned the practical points of routine from a good nurse. She will have to guard against undue anxiety, and she must also beware of misleading advice which will often be freely offered to her. The mother of a new-born baby needs peace and protection from worry. Every measure must be taken to help her recover her strength as soon as possible and she must be ready to seek the best information available if any difficulty arises in connexion with the child's progress. If a nurse takes over the care of the baby, the mother should feed it herself and keep up her close association with it, co-operating with the nurse and not giving up her responsibility towards the child.

**Discipline.**—All who have anything to do with the child must bear in mind that the baby's behaviour is a response to its surroundings and that calm and affection are essential to it.

A good *routine* is invaluable, as it provides for every essential, and plans the day so as to establish a regular order for the mother's and baby's life. The mother can acquire the habit of doing everything in the best way, and the baby know what to expect. Such a routine must be in harmony with the sequence of day and night, and be sufficiently elastic to be adaptable to changes of climate and season and weather, as well as to the stages of development of the child. All babies, from earliest infancy, have a surprisingly exact sense of time. Regularity in feeding and sleeping is of the greatest help to them.

**Health consultations.**—The mother should arrange for regular consultations with a children's expert, such as a doctor, nurse or trained health visitor who is a specialist

in child care, either privately or at a Maternity and Child Welfare Centre or Subscribers' Babies' Club. Periodic medical inspection is necessary as there is no other way of making sure that the baby is developing normally.

## CHAPTER I

### PREPARATIONS FOR THE BABY'S BIRTH

#### CARE OF THE HEALTH DURING PREGNANCY

As soon as a woman thinks she is pregnant it is her duty to have medical advice, so that she can be protected from any danger to her health or to that of the child, and can be instructed how to look after herself throughout pregnancy. The developing child obtains the building materials for all its tissues from the blood-stream of the mother. Her health and the food she takes largely determine the constitution with which it is born.

Pregnancy is in no way a condition of ill-health. It is a period of increased vitality. Most of the discomforts and ailments often associated with pregnancy are the result of errors in nutrition and hygiene.

With the help of her doctor, the mother should secure the best possible advice as to her diet. The doctor will make a general examination to ascertain whether her constitution as a whole is sound and, in every case of pregnancy for the first time, will take measurements to make sure that the child can be born without difficulty. After the first consultation, the doctor arranges for regular supervision of her health. This medical supervision can be arranged for privately or at an ante-natal clinic or hospital where a specialist is in attendance.

#### ARRANGEMENTS FOR THE CONFINEMENT

Arrangements must be made in good time for proper attention and nursing during the confinement. This is

necessary not only to spare the mother needless anxiety, but to safeguard her health and to give the baby the best possible chance of an *easy* birth, which is of the greatest importance, not only to its physical, but to its mental health. If the mother decides to have her baby away from home a good nursing home or hospital must be selected where she will have the services of a doctor and trained maternity nurse, or midwife. If the baby is to be born at home, the doctor and midwife are engaged privately.

#### HYGIENE OF THE PREGNANT WOMAN

The expectant mother has to take particular care in the following matters:

1. Diet.—This must include fresh fruit, salads and green vegetables *daily*. Meat should not be taken more than once a day and is better replaced by fish, egg and cheese, in any case after the sixth month. One to two pints of milk a day should be included. Certain mineral salts are especially important during pregnancy. The vitamins contained in cod-liver oil are essential for the proper calcification of the child's bones and teeth and to maintain a healthy condition of the mother's bones, teeth and nerves. There is reason to believe that vitamin A plays a part in guarding against puerperal infection. The doctor should be asked to advise in what form these additions to the diet are to be taken.

2. Fresh air.—The pregnant woman requires fresh air both day and night. The windows must be kept open.

3. Rest.—She should have from eight to twelve hours' rest in bed at night. She will very likely not sleep all this time, especially towards the end of pregnancy. Light sleeping during the last month is very usual and does not matter. During the day, also, at least one hour should be spent resting, lying down on the bed or on a couch with the feet up. To stand or sit for long at a time *in the last three months* throws a strain on the circulation and may produce swelling of the feet and varicose veins.



Walking about doing ordinary household work and occasionally resting with the feet up, preferably lying down, is much better for the pregnant woman. There is no reason for her to behave as an invalid, and for the first six months she will be far better if she continues her usual activities and work.

4. **Active exercise.**—This should be taken every day in the fresh air. Walking is the most suitable form and should be enjoyed for at least one hour a day. Certain forms of exercise are dangerous, such as lifting heavy objects, stretching and reaching up, walking hurriedly, running and jumping. The effect may be to cause contractions of the uterus and a miscarriage. Horse-riding, tennis and all very active games are inadvisable. Motoring is often harmful owing to vibration and a long journey is best taken by train.

5. **Special exercises for the abdominal muscles** are now recommended and are very good. They should be demonstrated by a trained masseuse.

6. **Baths and care of the skin.**—The pregnant woman should keep the skin in good condition by daily bathing all over. A cold sponge after the warm bath and cold baths are very beneficial as they exercise the skin and tone up the whole body. Sea-bathing is an excellent form of exercise and a tonic and will do no harm, provided one is used to it, but only a short dip should be taken. Sun-bathing, if carefully carried out, will be most valuable.

Daily massage of the abdomen with olive oil maintains the elasticity of the skin and prevents the appearance of wrinkles and marks after pregnancy. The rubbing should be carried down over the thighs and up over the breasts.

7. **Care of the breasts.**—During the last two months of pregnancy, the nipples should be rubbed every day, when washing, with soap and water and a soft toothbrush or nail-brush kept for the purpose. Alternatively they may be massaged with vaseline. If the nipples are flat they can be worked out with the finger and thumb. If carried out

properly, these measures are a safeguard against tender breasts, cracked nipples and breast abscesses.

8. Care of the teeth.—The teeth should be cleaned regularly, especially the last thing at night. A visit should be made to the dentist early in pregnancy and at intervals throughout pregnancy and lactation, according to his advice, as teeth are especially liable to rapid decay during this period.

9. Regulation of the bowels.—At least once a day there must be a free action of the bowels. If the general rules for diet and exercise have been carried out this should follow naturally. Sometimes there is a tendency to sluggishness, which becomes exaggerated during pregnancy, and it may be necessary to take a regular aperient. It is best to decide what to take in consultation with the doctor.

10. The state of mind during pregnancy.—The pregnant woman may observe for herself that she is more emotional and irritable than usual. This is quite natural, but she should be on her guard against allowing herself to be upset or worried, as loss of temper and distress are bad for her. Unnecessary anxiety can largely be prevented by sensible planning well ahead for her confinement and by arranging her days in a routine to include the essentials for her health which have been described. She would be wise to lead a fairly simple and quiet life, cutting down social events and entertainments which might over-excite or tire her. Both physically and mentally it will be better for her, however, to continue with the ordinary work of her life for the first six or seven months.

11. Clothes.—There is no reason for a woman to appear dowdy because she is pregnant. She should aim at looking trim and inconspicuous and so maintain confidence in her appearance of health and well-being.

There must be no restriction anywhere, but, whether she is in the habit of wearing a corset or not, it is advisable after the third month to support the lower part of the abdomen by some form of belt or light corset. This must be made so that it will expand and should not press

at all above the level of the navel. The ideal garment should give a feeling of comfort and assistance without any feeling of compression.

In choosing the other clothes the following rules should be observed: No elastic round the knee which may cause the development of varicose veins; no downward pressure or constriction of the abdomen; no pressure on the breasts to interfere with their function. Some form of light brassière must be worn to support the breasts and help them regain their form when lactation is over.

Shoes must be light and soft with low, broad heels and plenty of width at the toes.

#### SPECIAL EQUIPMENT FOR THE CONFINEMENT

The mother will require two or three bed-jackets, a dressing-gown, bed socks, bedroom slippers, and six night-dresses, three for day and three for night, two of which should be of cotton or linen so that they can be boiled. The nightdresses, to allow for the feeding of the baby, should have a wide neck, or fasten on the shoulder or in front, or be loose enough to pull up. She will need, as well as her ordinary toilet outfit, large-sized sanitary towels, a hot-water bottle and a sterilized drum containing sterile equipment for the confinement, to be obtained through a chemist. If the confinement is to take place at home she will require, in addition to the above, a good supply of clean bed linen, a mackintosh sheet for the bed, and a bed-pan, which can be bought or hired at a moderate charge. A rubber air-ring will add considerably to her comfort.

#### PREPARING THE ROOM

Provided her bedroom is clean, airy, light and quiet, no elaborate preparations are necessary. It should be within easy reach of the hot-water supply and lavatory. Hangings and covers should be washable and the floor washable, or polished rather than covered with a carpet. It is usual for the mother to consult her nurse about the most suitable room and its preparation.



## PREPARING THE BABY'S OUTFIT

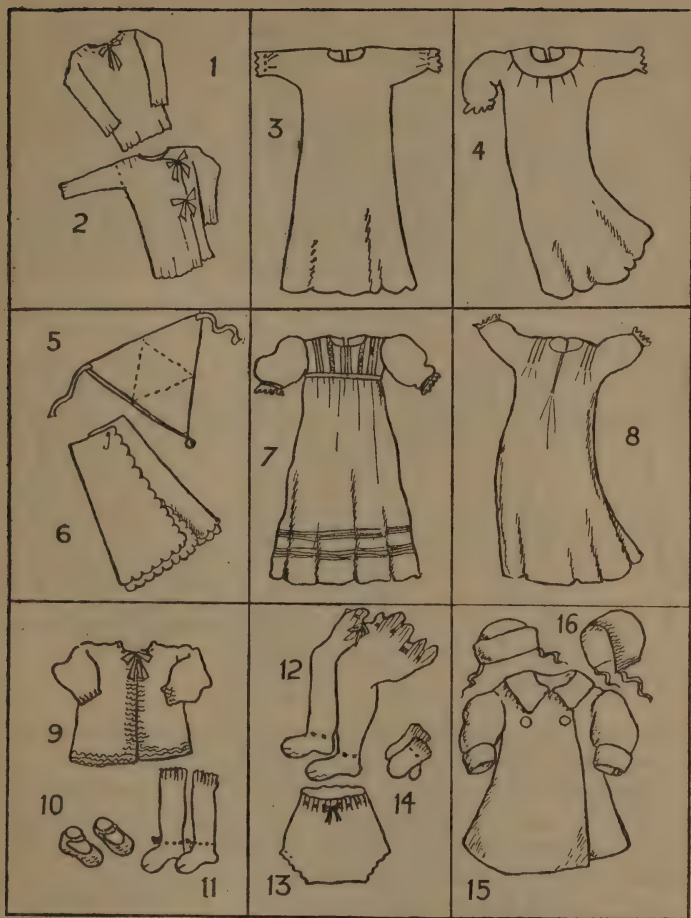
In choosing the baby's clothes one should bear in mind that their most important purpose is to keep the young infant warm and to protect the surface of its body. The warmest materials are silk and fine wool, which are also soft and smooth. In a few cases, where the baby's skin is extremely sensitive, a pure silk or fine cotton garment next the skin has to be used to prevent irritation, but generally the most satisfactory material is a woven mixture of silk and wool.

Clothing must be designed to fit comfortably.—Nothing must be tight to impede the free movements of the baby's limbs and body, and there must be no tight strings or bands to constrict any part. The neckband must be loose enough to show the collar-bones, and the armholes should be large so that it is easy to slip the baby's arms in and out when dressing and undressing it, and also to allow for growth. There should be no unyielding band or bodice around the chest or abdomen. Any form of stay is undesirable as it may not only hamper breathing movements but actually prevent the development of robust trunk muscles by interfering with freedom for exercise. Thin tapes used as shoulder-straps are bad, as they may press into the skin and chafe it. The petticoat or flannel should be cut with a wide shoulder of its own material.

The new-born baby cannot adapt itself to changes in temperature. It easily becomes chilled if exposed to cold draughts and over-heated if kept in too warm an atmosphere. One must clothe the baby according to the weather. It may be necessary in very hot weather to discard everything except one thin dress; even the napkins may be undone, and placed beneath the baby to form a pad. Whereas in very cold weather, besides putting on an extra jacket, a hot-water bottle may have to be placed inside the cradle.

## OUTFIT

The following garments should be provided and made large enough to last till the baby is eighteen months old.



**Fig. 1.—Clothing for a baby from birth to one year of age.**

1, Vest with draw-tape at neck; 2, wrap-over vest; 3 and 4, nightdresses or gowns; 5 and 6, flannel squares (folded); 7 and 8, day dress of muslin, silk or light wool; 9, soft wool jacket to wear over dress or nightdress in cold weather; 10, soft shoes; 11, socks to reach knee; 12, wool leggings; 13, wool drawers; 14, gloves; 15, outdoor coat for cold weather; 16, bonnet and cap.

**Vests.**—Four, made of woven silk and wool—either a wrap-over or a closed shape. There will be no difficulty in putting the latter over the baby's head provided the neck of the vest is made large enough. It can be loosely drawn up with vest tape. Long sleeves should be chosen for winter and short, elbow-length sleeves for summer.

**Napkins.**—Two to three dozen of Turkish towelling or non-inflammable flannelette and two to three dozen soft butter-muslin or Harrington napkins. Size of each, about 30 in. square.

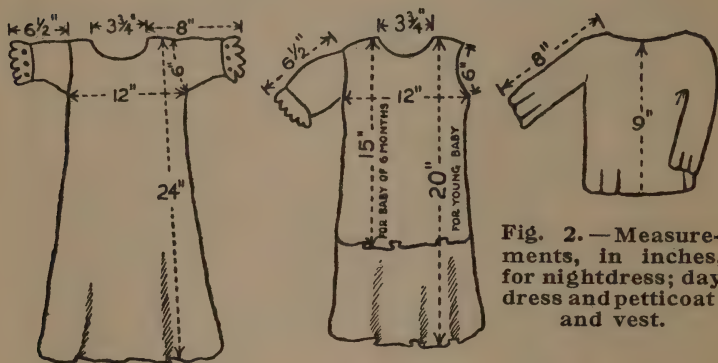


Fig. 2.—Measurements, in inches, for nightdress; day dress and petticoat; and vest.

**Flannel squares.**—Six. To go outside the napkins when the baby is in its cot or pram; about 18 in. square.

**Gowns or dresses.**—Four. Of light woollen material such as crêpe flannel, nun's veiling, delaine or flannel. If these are chosen no petticoats will be needed. Alternatively, four dresses of cotton, muslin or silk.

**Petticoats or flannels.**—Three or four. Of light woollen material if silk or muslin dresses are worn. In the case of transparent dresses, three muslin petticoats will also be necessary to cover the flannel petticoats.

**Flannel bodice and pilch.**—Three or four sets. May be used under a light frock as an alternative to the flannel petticoat. In this case no flannel square is worn over the napkins.

**Knitted jersey and leggings.**—Four sets. These may be preferred to dresses altogether. No petticoats are necessary in this case.

**Nightdresses.**—Four. Long-sleeved, of woollen material.

**Jackets or jumpers.**—Four, of knitted wool.

**Knickers.**—Three or four pairs. Of knitted wool or wool material, to cover the napkins and replace the flannel square when the baby is carried about or taken out, unless a pilch is worn.

**Socks.**—Three or four pairs. These should be knee-length.

**Large shawls.**—Two. For carrying the baby about in from room to room or out-of-doors, or to wrap round it when it is being fed.

**Small enveloping shawls.**—Two. They should be soft and light, yet warm (fine Shetland shawls are suitable), for wrapping round the baby in its pram or cot. Each to measure about one yard square.

**Binders.**—Three or four. Until the navel is firmly healed, strips of ordinary coarse white flannel or crêpe bandage may be used as binders; 4 in. wide by 20 in. long.

**Bibs.**—Six.

The older baby will need long leggings, shoes, gloves, a perambulator coat of cloth, and a bonnet or cap.

### THE BABY'S TOILET OUTFIT

The following list comprises all essentials:—

1. Bath, with stand, box, table or chair to place it on. A wide bath rack over the big bath could be used, in which case the mother or nurse would stand to bath the baby.

2. Soap-dish with drainer and lid.

3. Small chamber-pot or shallow soap-dish for holding the baby out.

4. Two enamel slop-pails with lids, one for wet napkins, the other for napkins which have been soiled and require boiling.

5. Two small enamel bowls, one for carrying away soiled napkins, the other for water for sponging the skin.



6. Two enamel jugs for filling the bath.
7. Two nail-brushes, one to clean the bath, the other for washing soiled napkins.
8. Clothes- or towel-horse.—Choose the smallest size of three-fold horse, with round bars.
9. Soap.—A pure Castile or curd is best.
10. Powder.—Starch powder or “poudre de riz” is better than talcum powder.
11. Powder-box and puff, or powder sifter.
12. Small bottle of olive oil.
13. A two-ounce pot of vaseline.
14. Cotton-wool.
15. Bath thermometer.
16. Hair-brush.—This should be soft, washable and non-inflammable.
17. Needle, cotton, blunt scissors—in a “housewife”—for stitching on the binder.
18. Mackintosh apron and flannel apron.
19. Two face-towels of butter muslin.
20. Four bath-towels of soft white Turkish towelling.
21. Two washing-flannels, one for washing the baby’s face and for sponging water over it in its bath, the other for washing the napkin area when changing a soiled napkin. They should be of material which can be boiled and should have some distinguishing mark.

In addition to the above, the mother should set aside some place in which to keep the baby’s clothes which are not in use. A wicker hamper is light and clean and especially useful for holding the baby’s things. A low chair, without arms, will be required for the mother to sit on when feeding and bathing the baby, or she may prefer to buy a special “nursing chair.”

#### CHOOSING THE BATH

A useful type of bath is one of either *papier mâché* or enamel, fixed in a special stand, with a shelf underneath for the small articles of the bathing equipment. Or a

folding bath, suitable for travelling, may be preferred. The young infant's requirements can, however, be met by the use of an ordinary wash-hand basin or any large bowl which is light, does not chip or break and does not get hot. Failing any of these, the small baby can be bathed in the big bath, but this is more tiring for the mother and extravagant in water.

### SCALES

The best way of keeping a regular record of the baby's weight is to have scales of one's own at home. A balance and weight scales is the only reliable form. Spring scales cannot be relied on over any length of time and may give rise to an error of as much as 2 lb. Reliable baby scales weighing up to 2 stone cost in the neighbourhood of £2-10-0, but a good kitchen scales weighing up to 1½ stone can be obtained for half this price. Second-hand scales can be bought through the advertisement columns of a baby's paper, or can be hired. Alternatively, the baby can be weighed at the Welfare Centre or at a chemist's, in which case the clothes will have to be weighed at home on the kitchen or other scales.

### CHOOSING THE BABY'S BED AND BEDDING

The cradle should not be too wide to tuck the baby up firmly, and should be long enough to allow for growth till the age of seven to nine months, when it will begin to sit up and will require a cot. A wicker-basket cradle to fit into a stand can be purchased very inexpensively. Some mothers prefer to start with a cot from the beginning, but the cradle is more comfortable for a young baby and can be used to carry it about. It may be trimmed, but any trimming beyond the simplest frill is undesirable as it collects dust and is difficult to wash often enough. A lining is necessary to cover the sharp ends of wicker-work and protect the baby from draughts. But no form of hood or head draperies should be used to interfere with free circulation of fresh air to the baby's face.

As an alternative, one of the many forms of folding canvas cradle may be used. A banana crate, a washing basket, or half an old-fashioned pilgrim basket may be converted into a comfortable bed. In emergency, a large drawer may be used temporarily.

**Cot.**—It is worth while to obtain a well-made cot to stand hard wear. The dimensions should be at least 2 ft. by 4 ft., and the railings at least 2 ft. high. The width between the bars must not be more than  $3\frac{1}{2}$  in. Both sides should let down. An unvarnished, unpainted, hard, polished wood is best, as the baby invariably gnaws its cot.

**Perambulator.**—It may not be necessary to have a perambulator at first, if it can be arranged for the baby's cot or cradle to be placed in the fresh air in a sheltered position on a balcony, veranda or flat roof. But it becomes necessary when there is no other way of arranging for the baby to be out-of-doors during the day and there is no one with whom the baby can be left when the mother or nurse has to leave the house. It is not desirable for the baby to be taken beyond the immediate surroundings of its home and garden for change of air and scene until it has reached the age of about eighteen months.

**Choice of perambulator.**—In choosing a perambulator, avoid one that is deep, hot and stuffy. Make sure that it is steady and will not tip up. If possible have a balancing weight underneath. A safety brake is essential. Smooth running and lightness depend on good springs, ball-bearing wheels and thick tyres and big wheels make for easier pushing. Light colours are cool; black, which absorbs heat from the sun, is the hottest colour. A canopy of washable material will be necessary in the summer. A really good perambulator should be obtainable from £5. A good second-hand one can be bought for half this price. Make sure that it has been properly cleaned and disinfected.

**Alternatives.**—A folding perambulator is suitable for an upstairs flat, also for travelling, etc. It is important to take special care that the springs are adequate and that the hood and

storm-apron really afford protection from rain. A push-chair should not be considered for a baby under a year old. It is quite satisfactory for taking out a child after the age of two, who can sit up for an hour or two without getting tired.

**Mattresses.**—The mattress should fit exactly and is best made of hair or of chaff which can be renewed. For the cot, a washable canvas underlay should be bought at the same time. The cradle mattress can be used for the perambulator if it is of the right size, or a special mattress bought, or a large pillow will do if it is firm and flat.

**Mackintosh sheeting.**—A strip 14 in. wide and 24 in. long is necessary to cross the mattress in the cot or perambulator and tuck well in at both sides. A good quality should be chosen with rubber on both surfaces. The red hospital mackintosh is the most durable. When the cot is used, in addition to this cross-strip, a large sheet of mackintosh to cover the mattress is also necessary.

#### BLANKETS FOR THE CRADLE AND PERAMBULATOR

The coverlets are to keep the baby warm and firmly supported with the minimum of weight, and should be porous to allow for the evaporation of moisture. Softly woven or knitted or cellular blankets made of wool are the most satisfactory. The following will be necessary:

**Underblankets.**—Three, small, made of wool, not flannelette. One to use in the cradle, one in the perambulator, one for changing.

**Large enveloping blankets.**—At least two, measuring about 76 by 40 in.

**Small coloured blanket or rug,** for outside use in the perambulator.

#### BLANKETS FOR THE COT

**Underblankets.**—Two, light woollen, large enough to cover the mattress over the large mackintosh.

**Overblankets.**—At least three, measuring about 76 by 40 in., one or two to place over the baby and one for changing. The cradle enveloping blankets can be used.



**Flannelette sheets.**—Four or more non-inflammable strips, to cover the small mackintosh, and for changing. Pieces of old blanket or the cradle underblankets can be used instead.

**Counterpane.**—This is of coloured cotton or other thin washable material and is placed over the blankets in the cradle or cot to keep them clean and to give a finished appearance. An eiderdown is unhealthy and should not be used.

**Pillows.**—One pillow can be chosen which will fit the cradle and also be used in the cot and perambulator, or a small curved pillow can be provided specially for the cradle, and a larger oblong or square pillow for the cot or the perambulator. It is safer to have no pillow at all in the cradle for the baby in its first few months. (Many instances have occurred in which a young infant has suffocated in its pillow.) The pillow may also very well be dispensed with in hot weather for older babies. The pillow should be flat and firm. Chaff or down is the best filling.

**Pillow-slips.**—Four or five, made of linen or cotton, will be needed.

**Dust-sheet.**—A dust-sheet, to cover the perambulator and keep it clean when not in use, is advisable.

## CHAPTER II

### THE YOUNG BABY

#### APPEARANCE AND BEHAVIOUR

At birth the infant is pink all over, its hair soft and silky. Towards the end of the first week the pinkness fades, and the baby is pale until it is three or four weeks old. Its hair begins to fall out and is gradually replaced by a fine down.

**Sensations.**—The young infant is limp and apathetic. It does not look long at anything, hardly notices light or darkness, and is very slightly affected by sound, stirring only at loud noises. The perception of touch is well

developed on its face, the palms of its hands and the soles of its feet. Its mouth is very sensitive and this is associated with its instinct to suck, so that it will attempt to draw into its mouth anything which touches its lips. The extreme sensitiveness of the skin around the eyes affords a natural protection against injury. If anything touches its face, such as the edge of a blanket, it cannot push it away, but will first screw up its eyes, then throw its head back and, if the discomfort continues, will cry. The baby's sense of smell is developed early, and by this it is able to recognize its mother, whom it associates with the satisfaction of its need for food. It has little discrimination of taste, and will take medicine without difficulty, though it very often does not like the feel of a spoon or teat at first.

To some types of pain, such as scratching and cutting, it appears less sensitive than an older baby. If vaccination is done within the first few weeks, the operation does not upset it nor does the subsequent inflammation of the arm disturb it. If circumcision is necessary this is best done early for the same reason.

Its sense of position and of vibration is well developed, and sudden movements of the baby's body, jarring of its cradle or banging the door disturb it and may frighten it.

**Reflex movements.**—The infant cannot adapt itself well to heat and cold, and is quickly affected by temperature changes.

The vital protective reflexes are strong. A new-born baby can blink, sneeze, cough, and yawn most effectively, thus protecting its eyes, air-passages and lungs. It also vomits easily and so protects its digestive tract from food that is unsuitable in quantity or quality. The bladder empties itself automatically as soon as a certain amount of fluid has collected and, similarly, a motion is passed as soon as the bowel becomes loaded. If a baby is held out systematically when these automatic actions are likely to occur, an association is formed in the baby's nervous system between them and the attitude it is held in. In this way training in regular control can be started (*see*

p. 81). It is doubtful whether the early enforcement of control in retaining waste matter is of any advantage to the child itself, though obviously it will save the mother or nurse much time and work. Often, between the age of one year and eighteen months, the child has to be taught control all over again as a *voluntary* action. For this reason, many mothers are inclined to forego very early training.

*The stools* of a newly-born baby begin to pass within the first twenty-four hours. At first they are soft and sticky and greenish-black in colour (meconium). After the baby obtains milk they gradually change to a bright mustard yellow, and should remain smooth and semi-fluid with a faintly acid odour.

*The urine* of the breast-fed baby is at first colourless and leaves no stain on the napkin. When the baby is given other food the urine becomes yellow.

The young baby has little *saliva* and a bib is unnecessary except at feeding-times or if the baby shows a tendency to regurgitate or vomit. At first the *tears* are very scanty when the baby cries.

**Voluntary movements and muscular control.**—The head flops and cannot be raised from the pillow and has to be supported by the nurse or mother when the baby is carried; the baby can only move it slightly backwards or forwards in short jerks, and roll it from side to side. The hands and feet are highly prehensile. The grasp of the hands is tremendously strong within a few hours after birth, and it is found that a baby can support its own weight by hanging by its hands. The hands will cling to any object placed in the palm. The arms and legs move at random, but if there is any sudden jar or vibration they are flung out in an effort to keep the balance. The infant's strongest movement is that of drawing up its knees towards its chin, its arms bent up, its fists clenched and its back bowed. It assumes this attitude especially when upset in any way by hunger, fear, pain or discomfort. Another strong movement is the stretching out straight of the whole body and

limbs, with the head thrown back, seen most frequently when it yawns.

The hands may sometimes, by the end of the first week, find their way to its mouth and the habit of thumb-sucking can develop from this time.

**Thumb-sucking.**—A baby may take to sucking its thumb very persistently to console itself, and it is more likely to make a habit of it if it is not contented and satisfied during the first few weeks. An under-nourished baby or one that has indigestion or colic is more likely to become a thumb-sucker. If the baby is correctly fed the habit will often be dropped without the adoption of other measures. It can be helped not to continue the habit by removing the thumb from its mouth as soon as it is asleep; and, as soon as it takes an interest in external things, by giving it plenty of objects to handle. Thumb-sucking often continues to a later age because the child is not allowed enough outside interests. Drastic measures, such as putting gloves on the hands or splinting or tying down the arms may do considerable harm psychologically, and the child deprived of this form of satisfaction may develop other nervous habits.

A mild degree of thumb-sucking should not be taken too seriously, and if no particular notice is taken of it, the tendency disappears with the end of the sucking stage of its life; that is, between one and two years old. Severe degrees of thumb-sucking often arise from ill-designed efforts to check the habit, and may lead to deformity of the mouth and jaws and encourage the development of adenoids.

The voice expresses different moods and if the mother studies the baby's cry, she can find out whether it means pain, hunger, or fatigue. The cry of exhaustion is characteristic with a shake or quaver in it, and usually shews that if the baby is snugly tucked up it will fall off to sleep.

**Sleep.**—For the first two to three months the baby, if it is well, sleeps throughout the intervals between its feeding



and bathing, that is practically twenty hours out of the twenty-four.

**The baby's feelings.**—The very young infant is little influenced by outside things, but any sort of internal discomfort, pain or desire for food, looms extremely large in its consciousness and, if not relieved, gives rise to violent crying and every appearance of distress. As soon as it is old enough to realize that help is at hand—for instance, when the baby can hear the nurse coming into the room to change it—the crying will stop before the discomfort is actually relieved. The shock of a loud noise, vibration or sudden movement, such as falling or slipping, will frighten it and cause it to cry. This sensation of falling is one of the most alarming that a newly-born baby can experience.

Although the movements of its arms and legs appear purposeless, it annoys the baby very much to have them checked by holding its hands or feet.

**At two weeks of age.**—From the second week onwards the baby develops and changes rapidly. It turns its eyes towards the daylight, whereas earlier it only noticed the very brightest light. It shows signs of recognizing its mother and nurse, and will notice light or brightly coloured clothes, and recognizes the sound of approaching footsteps. About this time it will begin to take much more pleasure in its bath. It becomes more sensitive and more intolerant of discomfort, such as wet clothing or over-clothing. At two weeks the baby can hold its head steady for a few moments when it is lying on its front or held up. It cannot roll over or change its position, so that there is still danger of suffocation by the pillow or bed-clothes.

At from four to six weeks the baby may be seen to smile in response to a friendly sound. And when it cries there are now tears.

#### HANDLING THE YOUNG INFANT

In dealing with a young infant the mother or nurse must aim at keeping it quiet and undisturbed, and must

handle it very gently. She should take special care to adapt its clothing to the weather, to see that its food is suitable and regularly given, and its skin kept clean, dry and comfortable. She should not restrict any of its activities, such as stretching, yawning, or waving its arms about. If the baby's arms become cold when it is exercising them she can slip on a little coat and, if necessary, gloves.

#### THE BABY AT DIFFERENT STAGES OF DEVELOPMENT

Always look for happiness and liveliness, steady growth and increasing strength of the child. If progress is delayed or the baby going back as regards growth and activity, ask advice from the most expert and sensible adviser available.

Do not interfere with any activities unless they are dangerous or harmful and do not suggest any habit unless it is one that is necessary to the baby. It is never a good thing to try to hasten the development of a child as this may cut short some valuable stage and the child lose stability as a result. To allow full opportunity for it to develop at its own rate is essential to healthy progress.

#### PROGRESS IN WEIGHT AND GROWTH

**Weight.**—The most usual weight for an infant at birth is between 7 and 8 lb., boys usually weighing more than girls, but the weight of a normal baby may vary from 5 to 10 lb. according to its type of physique. A baby which is large at birth is likely to be of the big type and to continue to be rather above the average in weight, but this is not always the case.

The baby loses weight for the first three or four days and then, as it begins to take more nourishment, gains weight until, at between one and two weeks, it weighs the same as at birth. From then onwards, the baby grows rapidly and steadily, putting on weight at the rate of 4 to 8 oz. a week for the first three months, until, at the age of three months, it has increased its birth weight by 3 to 4 lb. For example, a baby weighing 7 lb. at birth will at 3 months weigh about 11 lb. From three to six months

it continues to grow at the same rate and adds another 3 or 4 lb. During its first six months the baby will be seen to grow fatter, firmer and, especially from three to six months, more active. From six months to nine months the baby gains about 3 lb. and increases considerably in height. From nine months to one year it will gain another 3 lb., reaching a total of 21 or 22 lb.

Occasionally the weight will remain stationary for a week or two—at such times as when there is a sudden change of environment or when the teeth are in the process of erupting. Usually, for a week or two after this there is a compensatory increase in the rate at which it gains weight. *A baby in health and properly nourished should not lose weight after the first week of life.*

#### VARIATION IN WEIGHT OF NORMAL HEALTHY BABIES

<i>At birth.</i>	From 5 lb. to 10 lb.	Average $7\frac{1}{2}$ lb.
<i>At 6 months.</i>	From 14 lb. to 18 lb.	Average 15 lb.
<i>At 1 year.</i>	From 18 lb. to 25 lb.	Average 21 lb.

#### LENGTH OF NORMAL BABIES

<i>At birth.</i>	From 18 in. to 24 in.	Average 20 in.
<i>At 1 year.</i>	From 28 in. to 30 in.	Average 28 in.

### CHAPTER III

#### NATURAL OR BREAST-FEEDING

##### ADVANTAGES OF BREAST-FEEDING

NATURAL feeding is of the greatest value to the baby, to the mother, and to the relationship between them. Breast-milk is the perfect food for the infant. It is available at birth and provides all the baby's nutritional needs until solid food can be taken. In a healthy woman it is practically free from germs, contains *antibodies* (substances which protect the baby from infective diseases), and comprises the various food elements in the best proportions and in a perfectly digestible form for the developing child.

The way in which milk is produced in the breast corresponds to the baby's powers of sucking, and provides the best exercise for its jaws. As soon as mother and baby have become used to breast-feeding the baby is able to regulate the supply to its appetite by sucking more or less vigorously. Babies, it is true, can adapt themselves to artificial feeding, but every baby thus reared would be the better for proper breast-feeding.

*The baby's happiness*, on which mental health is based, may be determined by breast-feeding, for obviously it must make a great difference to the baby whether it is fed at the mother's breast and is in this close contact with her, or is offered such an impersonal substitute as a bottle.

*The number of cases of illness* and interrupted development is about three times as great among bottle-fed as among breast-fed babies.

*The death-rate* of artificially-fed babies is anything from twice to ten times as high as that of breast-fed babies.

*The health of the mother* can be greatly benefited by breast-feeding, as the radiant aspect of health and content of a successful nursing mother testifies. Breast-feeding assists the uterus to return to its former condition within the first three months; each time the baby sucks the uterus contracts; if the baby is not breast-fed the stimulus of this periodic toning up of the uterus is wanting, involution may be delayed, and the uterus remain large longer than it should and cause backache and discharge, and favour the occurrence of displacements.

*The maternal instinct* is assisted by giving the breast, and the mother's affection and protective feelings for the baby are strengthened.

#### INTERFERENCE WITH BREAST-FEEDING

Breast-feeding comes easily in most cases, and except in the presence of pronounced abnormality, such as deformity or serious disease, a baby can always be fed successfully by the mother for the length of time that it



requires breast-milk provided that the mother has made up her mind to take the necessary care.

A few physical conditions may cause difficulties (*see* p. 42), but most failures occur because the mother and those in charge of her are ignorant of the importance of breast-feeding and its management. Some women dislike the thought of breast-feeding, and the idea that a baby may just as well be artificially fed is still often met with. But, fortunately, there is now a tendency towards a more enlightened understanding of baby welfare, and the modern mother realizes her responsibility and that the restriction of a few outside interests in order to look after her health and to devote the necessary time and attention to feeding her baby is more than repaid by the safety of the child and the closer association with it that she gains.

#### HYGIENE OF THE NURSING MOTHER

Her daily routine should ensure that special care is taken in the matter of:

1. **Rest.**—The initial period of rest in bed after the baby is born will be decided by those in charge of the mother and will usually be from ten days to three weeks. When the baby is the first one, two to three weeks is generally needed. After this, she should rest on her bed for one hour every afternoon for at least three months, and have at least eight hours sleep at night.

2. **Exercise.**—Daily brisk exercise in the fresh air after the first three weeks is very important. Special exercises and massage while the mother is in bed are helpful, and she should consult her doctor on the subject.

3. **Bathing.**—After the first three weeks, the habit of taking a cold sponge should, if possible, be continued, as it has an excellent effect in toning up the body and helping to maintain the steady activity of the breasts.

4. **Recreation.**—This is not necessary every day, but it is a good thing for the mother to have a reasonable amount of occasional freedom from care and responsibility.

5. **Diet.**—The nursing mother requires a diet more generous than the one she is ordinarily accustomed to. It is usual for the appetite to be hearty, and at the ordinary meals larger helpings can be taken. The food should be as varied as possible and chosen on the same lines as during pregnancy, but may include more meat or corresponding protein food. She should also continue taking cod-liver oil or one of its substitutes, as well as any extra mineral salts, such as calcium and iron, considered necessary.

6. **Fluids.**—The nursing mother should make a point of taking extra fluid, such as milk and malted drinks and water. A glass of water taken at each feed time helps the flow of milk. Milk or malted foods made with milk should be taken at least twice a day.

7. **Stimulants.**—Wines and spirits, beer and stout, or alcohol in any form may be definitely harmful and are never beneficial. Nicotine is slightly poisonous, and smoking should be given up or much restricted. Such drinks as tea, coffee, and to a lesser degree cocoa, contain caffeine, which is a nervous stimulant and very often causes sleeplessness; they relieve fatigue but have the effect of making one tend to over-tax one's strength. They also increase the flow of fluid through the kidneys and reduce the amount of fluid in the breast.

8. **Bowels.**—Regular daily action of the bowels is necessary. This usually follows if enough water is taken and the diet includes sufficient vegetables and fruit. If it is necessary to take an aperient, a vegetable laxative such as senna is harmless to the baby, but no form of salts should be taken as they reduce the secretion of milk.

9. **Indigestion.**—The nursing mother will naturally avoid foods which in the ordinary way tend to disagree with her. Quite often she may think that some item of food she is eating is having a bad effect on the baby and causing wind or green stools, though she herself may be digesting it quite well. It is very doubtful whether this is ever the case. Hardly anything taken in the way

of food alters the quality of the milk, though if the mother has indigestion and is upset her milk supply may be diminished for the time being. The quality of the milk is not affected by mild aperients, but certain forms of medicine pass into the milk. No drug should be taken without medical advice.

### SPECIAL CARE OF THE BREASTS IN NURSING

It takes from two to five days after the birth of the baby before milk can be obtained freely from the breasts. The first secretion is a scanty, concentrated fluid called colostrum, which is specially suited to the needs of the newly-born infant. The breasts become swollen for one or two days. This engorgement is due to an increased blood supply and not to a collection of milk. It is a natural reaction to the birth of the child and a sign that the breasts are well developed. After milk begins to be produced the engorgement subsides. It is important to interfere as little as possible with this swelling of the breasts. Sometimes it is painful and sometimes it makes it difficult for the baby to suck. In this case it will help, between feeds, to pad the breasts with cotton-wool and support them with a bandage. If pain is severe and throbbing, it will do no harm to apply warm fomentations after each feed until it is relieved. It is useless and painful, and may be harmful, to attempt to draw off milk artificially at this stage; no tight pressure should be applied, nor should purgatives be taken.

At first, the nipples may be tender and there may be pain when the baby takes hold. This tenderness can be largely prevented if the breasts are well prepared during pregnancy (*see* p. 11). Scrupulous cleanliness is especially important during the first month, and the nipples should be washed before and after each feed with boiled water, using either sterile cotton-wool or boiled linen. The application of sterilized vaseline after feeds prevents the formation of cracks or sore nipples. To sterilize the vaseline, place the pot in boiling water for half an hour with

the lid off. For very tender nipples, special care is necessary, and glycerin of borax should be applied on lint or clean linen till the next feed, when it should be washed off.

A brassière should be worn to support the breasts, and lint or butter muslin or gamgee tissue used inside to keep it clean. The breasts must be supported so as to feel comfortable, but there should be no compression.

## CHAPTER IV

### MANAGEMENT OF BREAST-FEEDING

THERE are certain principles which must be understood if breast-feeding is to be managed successfully:—

1. The baby must obtain sufficient milk for its nutritional needs and to exercise the processes of digestion and excretion. The baby grows rapidly, especially in its early life, and every day new parts are being developed and elaborated. It is vital that there should never be any insufficiency of food. If the baby's digestive and excretory organs are not used sufficiently by adequate quantities of food, they will not attain their full powers and may remain feeble into adult life.

2. The baby must not be given too much for its digestion to deal with. Regular feeding is of the greatest advantage, as it allows a steady rhythm of digestive processes to occur. The regularity must not only be a matter of time but also of quantity.

3. The manner in which the baby takes its feed is important. If it takes its feed in the right way it develops its powers of sucking and breathing correctly. If the first feed is not well managed, the baby may form the habit of holding its breath or choking at subsequent feeds. The feed must be given in such a way as to stimulate the functions of the breast, so that adequate and increasing amounts of milk are supplied. The more vigorously the baby sucks and, within limits (avoiding fatigue of the



mother), the more often the breast is emptied, the more milk will be produced during the day. When the milk is not all drawn off further secretion is diminished.

**The first day's feed.**—There is a difference of opinion as to when it is best to put the baby to the breast for the first time. The need for rest and peace for both mother and child must be stressed, while, on the other hand, the opportunity for the baby to exercise its instinct for sucking must not be too long delayed.

As soon as the baby has recovered from the shock of its entry into the world, it will be ready to take its first feed. The mother may require rest and sleep for a few hours, after which her first feeling will be for the baby, and this is the right moment for her to start feeding it. The time will vary in every case. Many strong and healthy mothers put the baby to the breast immediately the third stage of labour is complete. This is the most natural and the best plan. Suckling the baby causes the uterus to contract and prevents excessive loss of blood. For the baby, also, giving the feed directly after its birth has considerable advantages. In its first efforts at sucking, free breathing through the nose becomes established and the opportunity to exercise its strongest instinct immediately gives it a hold on life. The first feed usually lasts for two or three minutes on one side only, and the second feed is given at the other breast. There is no advantage in prolonging the time. As soon as the baby tires of sucking, it should be put back into its cradle to sleep.

**Routine of feeding.**—From the first feed, the baby can be put to the breast at regular intervals, either three-hourly or four-hourly, with a long interval at night from 9 or 10 till 6 in the morning. For the first three days the baby requires a great deal of sleep and very little nourishment. For the first twenty-four hours, two to three minutes at each side is long enough to give it practice and prepare the breasts. After twenty-four hours, the feeds should be increased to twenty minutes. As a general rule, it is more

comfortable for the mother, and more restful for the baby, if the feed is given half at one side and half at the other, that is ten minutes' sucking at each breast. The baby sucks more vigorously at the beginning of a feed and takes more milk from the first breast; therefore if one feed is started on the right side, the next should be started on the left. When the milk supply is very abundant and there is difficulty in checking over-feeding, only one breast should be given at each feed.

**Night-feeds.**—During the first two or three nights both baby and mother usually sleep undisturbed. After the third day, when the baby begins to obtain milk, it evinces more interest in its food, showing definite signs of hunger when the feeds are due. A certain number of babies will not tolerate the long fast at night, but will wake up hungry at some time during the interval. This happens more often with small babies that cannot take large enough quantities at a time. It is better, in this case, to give an extra night feed at 12 or 3 a.m. for the first few weeks. No bad habit need result; the baby will gradually tend to sleep on through the night as it grows and is able to take more during the day. If the baby is awake and seems thirsty between feeds, especially in hot weather, tepid boiled water should be offered gently in a warm teaspoon.

#### TECHNIQUE OF BREAST-FEEDING

When the mother is about to feed the baby, no one else but the nurse should be in the room. Everything should be as quiet and peaceful as possible. The mother will require assistance to arrange herself and the baby while she is still in bed. Her head and back must be supported by pillows and one pillow placed underneath her arm on the side on which the baby is to be held. She should lean towards this side, resting her weight on the pillow and adopting a half-reclining attitude. She must support the baby with one arm and keep the other hand free to hold the breast and direct it to the baby's mouth. Sterne, in

"Tristram Shandy," has pointed out how wise is the Providence that provided babies with snub noses. It is remarkable how little space they manage to breathe in, but it is necessary for the mother to see that there is free airway to both nostrils.

The baby is laid on the pillow inside the mother's arm, its head in the crook of her elbow and its face towards the breast. When both are settled comfortably, she must guide the breast towards it and it will open its mouth and move its head about, turning it from side to side or jerking it forwards in short, weak, nodding movements until it feels the nipple with its lips. Usually it will not grasp the nipple at once but will touch it several times and leave go again. The effect of these movements is to make the nipple stand out so that the baby can get a good hold. The baby should be given time to stimulate the breast in this way as it is very difficult for it to grasp a flabby nipple. Ignorance of this often leads to failures in managing the first feeds.

**Breast-feeding after the mother gets up.**—When the mother gets up she should continue to give the first feed in the morning and the last one at night in bed in the same way, and it is an excellent way of obtaining extra rest if she also gives the afternoon feed lying on her bed. Later on, when she is stronger, she may prefer to sit up in bed for these feeds. She can sit in a low nursing chair for the other feeds and should have a pillow under her elbow so that she has not to stoop over the baby.

**Regulation of the flow of milk.**—When a baby is taking its food it alternately sucks and breathes, and if the milk flows too quickly it may be impossible for the baby to get its breath. It continues swallowing air and milk together, and a high-pitched gulping sound is heard. The flow of milk is difficult to control. It may be slowed down a little by pressure on each side of the areola (the dark ring round the nipple) with two fingers of the free hand, but if it cannot be stemmed sufficiently by this means alone, the

mother should withdraw the breast from the baby's mouth and give it time to start breathing properly once more.

**Breaking wind.**—However carefully the feed is conducted, a baby will always swallow some air, and it is necessary to help it to break wind at least once during the feed and at the end. If it sucks vigorously, this will be after the first five minutes and again when it has finished taking the first breast. During the second half of the feed less air is swallowed. When it has finished the baby will generally stay awake till it has been able to get rid of its wind, which is usually brought up in two or more gulps, and it should be held upright for any time from three minutes to a quarter of an hour to give it full opportunity to do so, watching for signs of fatigue such as wriggling, fretting or crying.



**Fig. 3.—How to hold the baby when breaking wind.**

The mother or nurse holds the baby under its arms, her thumbs in front and her fingers running up to support the back of its head. Or she may hold it against her chest, one hand under the baby's seat and her other hand and part of her arm supporting its back, her fingers again supporting its head (Fig. 3). Its chin rests on her shoulder. She can use whichever of these two methods seems the more comfortable, and if the baby gets tired of one position before it has got rid of its swallowed air, change over to



the other. The object of holding the baby upright is to allow the air in the stomach to float to the top and escape up the gullet. The air cannot escape until the valve between the stomach and gullet relaxes. It may relax immediately or only after the baby has rested in the upright position for some time. In very tired or sleepy babies the valve may not relax at all, in which case it is no use waiting.

Stroking or patting the baby's back very gently or pressing the baby's chest with the thumbs or against the mother's chest helps this process. But unless this is done with the greatest care milk may be forced out of the stomach (regurgitation of milk).

If this holding up for wind is not carried out properly, the baby may be sick later, when it is lying down, in its efforts to break wind, or the air may pass into the intestines and cause colic.

Length of time for each feed.—After the first day, twenty minutes spent in taking the feed is the most satisfactory time for the majority of babies, but it is necessary to observe the baby and use common sense in the matter. If there is a very plentiful supply of milk and the baby sucks forcibly, it will naturally obtain more in a short time. The feed may be reduced to fifteen, ten or even six minutes when the baby is satisfied with this and when there are signs of over-feeding with longer time. If the breast-milk is scanty or the baby does not suck effectively, it may be allowed an extra five minutes, if it appears to want it, provided that it actually does get more in this way and is not exhausted. A certain number of easily satisfied babies will take considerably less than they require rather than exert themselves, and here tactful encouragement and longer feeds for a few days will get the baby into the habit of taking more. Half an hour may have to be spent in the case of very little, feeble babies that suck slowly and drowsily. But these babies, which are generally premature, require, in any case, special care and skilled advice. It suits many babies to continue the routine of twenty minutes

at the breast throughout the suckling period, but very often as the baby grows it can take its feed more quickly and will obtain sufficient in half this time or less.

How often to give the feeds.—A normal baby can, in most cases, be successfully managed from the beginning on three-hourly or four-hourly feeds, though certain types tend to do better on one than on the other.

Three-hourly feeds would be given at 6 a.m., 9 a.m., 12 noon, 3 p.m., 6 p.m., 9 or 10 p.m. If seven feeds have to be given, the night feeds can be either at 12 midnight or 3 a.m.

Four-hourly feeds would be at 6 a.m., 10 a.m., 2 p.m., 6 p.m., 10 p.m.

Generally, it is wiser to feed three-hourly to begin with, because one can be sure of not over-taxing the digestion by large quantities at a time; also, the more frequent stimulation of the breasts gives an added safeguard against any deficiency of milk.

Three-hourly feeding is likely to be most suitable in the case of a baby weighing less than 8 lb. at birth and also of a baby which, though fat and of good weight, is of small build and has a stomach of small capacity. After the baby has reached the weight of about 10 lb. the question of changing to four-hourly feeds may be considered.

Four-hourly feeding can well be adopted where the baby weighs over 8 lb. or is of large build, even if lean, provided there is no difficulty regarding the milk supply. One has to be satisfied that the baby can easily obtain and comfortably digest the larger amount at each feed. Four-hourly feeds take less of the mother's time and, in the case of a delicate or nervous woman, this is a point to consider.

Quantity of milk taken at each feed.—The actual quantity taken at each feed is not the same at different times of the day. The first feed in the morning is usually the largest, and the second feed is nearly as big. The 2 p.m., or midday and 3 p.m. feeds are the smallest in the day. By the evening the feeds tend to be larger again. It is important that the *daily* average should be

adequate and fairly constant, but the actual amount at any one feed is not of such significance. If test feeds are only taken for one or two feeds, very misleading conclusions may be drawn. When lactation is being established it is best for the mother to give her attention to the infant and not be worried with questions of ounces and numbers. The delicate processes of digestion and nutrition of the infant are being rapidly developed and rigid methods based entirely on arithmetical calculations are not applicable. Any conclusion drawn from test feeding must only be considered side by side with other important aspects of the baby's progress.

**How much food is required a day.**—For the first three days the infant only requires very small quantities of colostrum. As soon as milk appears the baby begins to suck more at each feed, until between the seventh and fourteenth day it can obtain and digest sufficient to meet all the requirements of its nutrition. From this time on, the actual quantity of milk required bears a relation to its size and weight and stage of development.

The energy derived from food is calculated in units known as calories, and 1 oz. of breast-milk is known to yield about twenty calories. Between the ages of two weeks and six months the average healthy infant requires about fifty calories per pound of its body weight, so that its food requirements can be calculated by the formula:

$$2\frac{1}{2} \times \text{the weight of the child in lb.} = \text{the number of oz. of breast-milk required per day.}$$

Thus, a baby weighing 8 lb requires about 20 oz. of breast-milk in the 24 hours. Between the ages of six months and one year the caloric requirement is slightly less, usually forty to forty-five calories per lb.

**Over-feeding.**—If a baby is persistently taking more than is good for it, any of the following signs may be noticed:

1. Abnormally large gain in weight. But if the baby is made ill by over-feeding, this may be reversed and it may lose weight.

2. Crying directly after feeds, owing to discomfort and the difficulty of eructating wind from the distended stomach.
3. A tendency to regurgitate or to vomit directly after feeds.
4. Passage of frequent large motions, namely, more than three a day, often one after every feed. The motions may appear healthy or may be watery or green or contain curds (pale blobs of undigested fat). In a certain number of cases of over-feeding the bowel becomes sluggish and constipated.
5. Screaming attacks between feeds, due to colic, associated either with constipation or diarrhoea. These symptoms are always more obvious during the day in an over-fed baby. At night, when the digestive system is at rest, the baby is usually more peaceful.

**Under-feeding.**—If the baby is not obtaining sufficient:

1. It cannot gain adequately in weight. It will become thinner and paler.
2. It will be irritable and tend to cry for some time before each feed as it becomes hungry, and may cry after the feed as well owing to being unsatisfied. The baby may refuse to suck after it has failed to obtain satisfaction from the breast for several days.
3. The under-fed baby may also vomit after or between feeds owing to the large amounts of air it swallows in its fruitless efforts to obtain enough milk and, in getting rid of the air, milk is brought back.
4. The commonest effect on the bowels is a decrease in the size and number of the motions. Often several days go by without any action. The stools may be normal in colour. Sometimes small, dark stools known as "hunger stools" are passed frequently.
5. The under-fed baby sleeps less than usual and is wakeful by night as well as by day. When a baby has been partially starved for several weeks it may cease to be fretful and become apathetic and quiet, though sleepless.



**Regulation of over-feeding.**—Over-feeding can be controlled by shortening the time of sucking to fifteen, ten, or even six minutes, giving one breast at each feed, instead of both; by reducing the number of feeds in the day and lengthening the intervals, e.g. from six feeds three-hourly to five feeds four-hourly; and also by giving the baby water just before feeding. It may be necessary to control and check these measures by test feeding.

**Regulation of under-feeding.**—The baby must be encouraged to suck more vigorously, and may be allowed longer time at the breast for each feed, but half an hour should be the limit. Both breasts should be given at each feed, instead of alternate sides. The intervals if four-hourly, should be shortened to three-hourly, and in some cases an extra feed given at night, i.e. seven feeds in the twenty-four hours. Measures to increase the supply of breast-milk (*see* p. 43) should also be taken.

#### DIFFICULTIES IN BREAST-FEEDING

There are certain abnormal conditions of the baby which make it difficult for it to take the breast, apart from very serious mental defect or physical deformity. If the baby has been born prematurely, or is exhausted by a difficult birth, it will take longer to learn to suck effectively. With care and patience and special adaptation of the times and quantities for feeds, such a baby can be helped gradually to reach the normal condition. The first few days are the most critical, and if even for a day the baby does not appear to be gaining ground, the assistance of a good nurse and advice from an experienced doctor must be obtained at once.

Colds in the nose and coughing and bronchitis will interfere with sucking, and in these cases, too, medical advice is needed. The nostrils should be cleaned with pledgets of cotton-wool moistened in boric lotion; and vaseline or liquid paraffin then introduced. During the feeds, the baby must be allowed more time in which to rest and get its breath.

Thrush is a condition in which the inside of the lips and mouth and the tongue become inflamed, and white spots appear. It is caused by the introduction of dirt into the mouth and to injury of the mucous membrane by "cleaning out" the mouth. It makes sucking very painful. It is treated by gently swabbing the inside of the mouth with glycerin of borax before and after each feed. The mother's nipples must also be swabbed with glycerin of borax after each feed until it is cured. If this treatment is not rapidly successful medical advice is necessary.

The mother may have difficulty in feeding the baby because her attitude is so morbid that she has an actual feeling of distaste for the function. Often such a mother is in a state of nervous tension and excitement which prevents her from devoting enough attention to giving the feeds properly. She will find it very helpful if the nurse is gentle and sympathetic and if there is freedom from interruption at feeding-times. Visits to the nursing mother should be reduced to the very fewest possible, and after she is on her feet, she will have to be treated with care and prevented from tiring herself.

Certain illnesses do prevent breast-feeding, but only the more severe. In mild illnesses and in most acute, but not dangerous illnesses, breast-feeding can be continued and is a safeguard to the baby.

#### TO INCREASE THE SUPPLY OF BREAST-MILK

There is sometimes delay in the production of milk, and it is not at first sufficient to provide for the baby. The breasts must be stimulated by putting the baby to each breast every three hours and by expressing by hand or by a breast-pump any residue of milk after each feed (*see p. 44*). Twice a day the breasts should be stimulated by the following method: Fill two basins, one with cold water and one with water as hot as can be borne. Sponge the breasts with hot water till they are warm and pink, then with the cold. Repeat alternate hot and cold

sponging quickly for 5 minutes. Rub briskly with a towel and finish by gently kneading and massaging both breasts towards the nipple for 3 minutes. The mother must make a point of taking plenty of liquid (*see* p. 31), and there must be no interference with her rest by day or night. The baby will have to be weighed before and after feeding to see how much it obtains and the necessary quantity made up by giving some form of extra milk and using any breast-milk that is expressed, until the milk supply becomes adequate.

If the breasts have not been properly prepared during pregnancy, the nipples may be flat or unduly tender. A nipple shield should be used—the best is made entirely of rubber—and treatment of the nipples begun (*see* page 11). If there are actual cracks, their healing will be encouraged by applying Friar's balsam after each feed, and the breasts should be used alternately, one at each feed, to give the cracks more time in which to heal.

If the cracks are neglected, inflammation of the breast, or breast abscess, may result. This shows itself as a tender red area. Its occurrence calls for immediate medical treatment and, for the time being, the affected side should not be used, but the other side given at each feeding-time, and the quantity made up for the baby by using artificial food if necessary. As soon as the abscess is healed both sides may be used again.

#### HOW TO EXPRESS BREAST-MILK BY HAND

The mother or nurse can learn how to drain the milk from the breasts by hand more completely than is possible with a breast-pump. Gently grasp the breast with the whole hand and stroke it towards the nipple, then squeeze the areola (the dark ring around the nipple) between the thumb and forefinger so that the milk gushes out. Repeat these movements quickly and lightly from all sides of the breast in turn until the milk is only expressed in drops at a time. Do not express for more than five minutes each side.

## ADDITIONS TO THE DIET OF THE BREAST-FED BABY

**Water, fruit-juice, and cod-liver oil.**—After the first week, water can be given regularly every day. The best time to give it is between feeds when the baby wakes up. If the baby is carefully taught it will take it from a spoon. One teaspoonful to one ounce, three times a day, is sufficient. Pure cod-liver oil or cod-liver oil emulsion, which supplies vitamins A and D, and orange-juice, which contains vitamin C and iron, should both also be given every day.

**Orange-juice.**—Start giving this at one month old, one teaspoonful a day, and increase by a teaspoonful a day at the end of each week, so that by the time the baby is two months old it will be having four teaspoonfuls a day. This can be gradually increased, and by the time the baby is nine months old it may have the juice of a whole orange. The juice may be given pure or diluted with water and sweetened with sugar if it is sharp, and is best given twice a day between feeds.

**Cod-liver oil.**—A good 50-per-cent. emulsion is the most satisfactory form in which to give this, starting with half a teaspoonful a day at one month of age, giving it just before a feed. The amount should be increased every week by half a teaspoonful a day, until the baby is having six teaspoonfuls a day divided into doses of two teaspoonfuls given three times a day. This is the full amount necessary in the winter. During the summer, in very hot weather, the quantity should be reduced. If the baby cannot tolerate cod-liver oil, one of its substitutes must be used.

## CHAPTER V

### MIXED FEEDING

#### THE INTRODUCTION OF SOLID FOOD INTO THE DIET

*(From six to nine months of age)*

BE prepared to give the baby other food besides breast-milk as soon as it requires it, to prevent any delay in development. When the teeth are near the surface of the



gums and saliva flows freely, the baby grasps any object within reach to convey to its mouth and bite, showing a desire for solid food. In a healthy baby, this usually arises about the age of six months. The wise way to introduce solid food is to study and follow the inclinations of the baby, and as soon as it is interested in biting to give it the opportunity to take gradually increasing amounts day by day.

The food introduced into the baby's diet has:

1. To provide energy for increasing physical activity: crawling, standing, etc. This is best met by the *carbohydrate* type of food (sugars and starches), and by *fats*, such as butter, cream and cod-liver oil. Fat is also important in helping to maintain the body-heat and is more necessary in winter than in summer.

2. To supply additional *mineral salts*, for the needs of growing bones and tissues and the greater volume of blood, and for the healthy functioning of all body tissues, e.g. calcium (lime), phosphorus, and iron, which are obtained from vegetables and fruits, animal foods and cereals; also iodine, which is supplied in sea fish.

3. To provide different kinds of *protein* or flesh-building substances which can gradually take the place of breast milk. Various forms of protein are contained in such foods as milk, eggs, fish, pulses, and to a certain extent in cereals and green vegetables. Broth and meat juice, and all forms of meat, are a rich source of protein, but as meat is stimulating, and requires considerable chewing, it is advisable not to include it in solid form in the child's diet, at all events until most of the teeth are cut.

4. To ensure a regular supply of essential *vitamins*. These mysterious substances are necessary to growth, to ensure that the body develops along the right lines and remains in health. At least six classes of vitamins have been discovered, all of which should find a place in a diet that is sufficiently full and varied.

5. To provide *water*, which is not only one of the main

constituents of the body, but also dilutes and removes waste substances.

6. To *clean the teeth* and to supply sufficient residue to stimulate the muscles of the bowel and so prevent constipation. Hard crusts, rusks, crisp fruit, and vegetables will fulfil these requirements.

**Bread and rusks.**—Begin by giving the baby a crust, a hard malted rusk, or piece of baked bread or toast to hold in its own hands and to suck or nibble. (Sweet biscuits contain too much cane sugar and are too breakable.) As the baby chews at a tough rusk it will gradually moisten and soften a small piece so that it can be swallowed. At first it should not be left alone, in case it gets into difficulties and chokes. Allow the rusk for about ten minutes three times a day, just before the regular feeds; not after the feed in case it retches, and vomits the milk. Later on it may be given after the feed, as many babies prefer to satisfy their hunger with breast-milk and then bite a rusk at leisure.

**Butter.**—The rusk or toast may be buttered after the baby has learned how to eat it. Use fresh butter, not more than half-teaspoonful to start with, three times a day. High-grade margarine containing added vitamins A and D is a satisfactory alternative.

**Vegetables and broth.**—The most suitable vegetables to start with are spinach, brussels sprouts, cabbage and greens, cauliflower and vegetable marrow. They should be steamed or boiled in the smallest quantity of water and without soda. When tender they should be thoroughly mashed to remove all fibre or passed through a sieve to make a purée, and the liquid should be used also. Vegetable juice or broth and a little vegetable purée given from a spoon should be introduced one or two weeks after starting the rusk. Start with one teaspoonful once a day of purée, and increase the quantity every day by about one teaspoonful until the baby is able to take about eight teaspoonfuls (one rounded tablespoon) once a day. The best time is usually at the 2 p.m. feed just before

giving the breast. At the same time, give two teaspoonfuls of the broth or vegetable juice and increase this gradually up to 1 or 2 oz. daily as soon as the baby is taking it well.

**Cereals.**—Cooked cereal is the best form in which to introduce extra starch and vegetable protein, and can be combined with a little cow's milk if it is desirable to add to the milk allowance. If the baby is obtaining plentiful supplies of breast-milk, the starch can be cooked in water and given in the form of gruel, or cold as jelly. The cereal used must be smooth and finely ground. The following are useful: semolina, cream of wheat, farola, groats (ground oats), ground barley, flaked rice, ground rice, custard powder, and corn flour. Certain proprietary foods, such as Benger's, Mellin's and Sister Laura's, can be used, and may be valuable owing to their ease of digestion, but it is wiser to choose these on the advice of a medical practitioner. They should not be given more than once a day, and only during the short period when the child is first being introduced to starchy food. It is well to vary the cereal and to give a different kind at the different feeds. Cereal can be added to three feeds in the day. Start by allowing one teaspoonful at each meal cooked in 2 oz. of water or milk, or in the broth. The cereal should be cooked by boiling for twenty minutes. The quantity can be gradually increased from 2 oz. to 6 oz. at a feed.

As soon as these cereals are introduced it is necessary to increase the amount of *cod-liver oil*, or its equivalent, because many cereals—especially oatmeal—tend to increase the liability to rickets and dental decay. A child of eight to nine months can be given up to nine teaspoonfuls of cod-liver oil emulsion, corresponding to four and a half teaspoons of cod-liver oil a day. This should be given after the feed, starting with one teaspoonful once a day and increasing by a teaspoonful every seven days. If cod-liver oil has already been started it should be gradually increased up to the required total.

**Eggs.**—Fresh eggs may be introduced into the diet between the age of six and nine months. The best way to begin giving eggs to a baby is to give the raw yolk only, either direct from a spoon or stirred into part of the food, i.e. broth, vegetable or milk mixture. Care must be taken not to add it to food which is so hot that it would curdle the egg. The first day it is introduced, half the yolk only should be given. It can then be given on alternate days for a week. Next give the whole yolk every three days. After having had this for a week the baby can start having part of the white also, raw, beaten with the whole yolk and mixed in the food. When it is about ten months old the baby may be allowed a whole egg beaten up raw, or very lightly boiled or coddled, twice a week. The egg must be as fresh as possible and it is best to give it at the 2 p.m. feed (i.e. dinner-time).

**Fruit.**—If fruit juice has not been given before, it should be introduced into the diet as a regular item from six months. Orange juice and tomato juice are the best forms. The juice from any stewed fruit can also be given, but any new form must be introduced in teaspoonful quantities. If the juice is very acid it is best to dilute it with water and sweeten with sugar. From one teaspoonful increasing gradually up to 1 oz. may be given twice a day between feeds.

**Water.**—Tepid or cold water should be offered regularly as a separate drink between meals. The water used must have been boiled, unless the water supply is known to be sterile. At first a baby will take only sips from a teaspoon, but gradually it will learn to drink from 1 to 2 oz. at a time from a cup.

#### HOW TO GIVE SOLID FOOD TO THE BABY

Have the baby sitting on the lap and offer the food very gently on the tip of the spoon, encouraging the baby to take it into its mouth itself; the food should be warm but not hot, and the edge of the spoon not sharp. A



bone spoon is very suitable. The baby should from the start be allowed to play an active part in taking the food, which should not be thrust into its mouth. If care is taken never to feed a baby against its inclinations, difficulties in feeding and at meal times will not arise later on. Some babies are rather reluctant to take a new kind of food, and it is then necessary to let a week or two go by before attempting to increase the quantity. Continue to offer the food regularly without insisting on the baby taking it. Watch the colour and consistency of the motions for any sign of indigestion, and if this appears diminish the quantity of broth and vegetables, or omit them altogether for a day or two. If the baby is unwilling to take the food at all it is better not to persist but to proceed to the next addition to the diet, and after a week or two to try the vegetable again.

#### FURTHER ADDITIONS TO THE DIET

*(Between the ages of nine months to one year)*

**Pulses and root vegetables.**—When there are four to eight teeth the diet should be further varied by the addition of peas, beans, lentils, carrots, and turnips, well cooked and sieved. Not more than two teaspoonfuls of the vegetable pulp itself should be added at first, as alternatives to the green vegetable purée. The quantity can be increased gradually up to one heaped tablespoonful.

**Fruit.**—The pulp of oranges can be given as well as the juice. A ripe apple may be given raw, the whole being peeled and the baby allowed to nibble it. Baked or stewed apple may be given with the milk pudding, sugar being added if the apple is too sour. Begin by giving two teaspoonfuls and work up to one heaped tablespoonful at a time. Prune juice or prune pulp may be used on alternate days to the apple. Start with the juice and gradually add the pulp, working up to about two tablespoonfuls of juice and the pulp of two prunes. As another alternative, grapes, squeezed out of their skins, and with the pips removed, may be given after the pudding.

**Fish.**—When the baby has eight teeth, at about one year old, fish can be started. Plaice, sole, whiting, or fresh haddock should be chosen. It may be steamed in a colander over a saucepan or stewed in a little butter and milk. Start with a teaspoonful of fish mixed with the vegetable, twice a week for dinner, and increase by a teaspoonful at a time, until a heaped tablespoonful is given.

**Potato.**—This also can be included in the diet after the first eight teeth have been cut. Potato requires the action of the saliva for adequate digestion, and should preferably be given when the child is inclined to keep the food for chewing in its mouth. It must be fully cooked by baking or boiling in the skin (not by frying), well mashed, and given mixed with the green vegetables or pulses and broth.

The weekly menu given below shows how the food can be varied so as to include all the necessary constituents.

#### WASHING AFTER MEALS

The inside of a baby's mouth should not be cleaned out after feeds. It is cleansed by the saliva and when the teeth appear these are kept clean by giving fruit and fruit juice. But the skin around the lips, and the chin and cheeks should be carefully washed and dried after meals.

#### SUGGESTED MENU FOR THE DAY

**For a child of nine months to one year:**

- |         |                                                                                                                                                      |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 a.m.  | Breast-feed or milk mixture from bottle, or cup.                                                                                                     |
| 10 a.m. | <i>Breakfast.</i> Toast, crust or rusk and butter.<br>Cereal in milk followed by breast-feed or milk mixture from bottle, or cup.                    |
| 2 p.m.  | <i>Dinner.</i> See p. 52. Preceded by dry toast, crust or rusk and followed by breast-feed or milk mixture from bottle, or cup.                      |
| 6 p.m.  | <i>Tea.</i> Toast, crust or rusk with butter.<br>Cereal or malted food prepared in milk followed by breast-feed or milk mixture from bottle, or cup. |
| 10 p.m. | Breast-feed or milk mixture from bottle, or cup.                                                                                                     |

## SUGGESTED WEEKLY DINNER MENU

For a child of nine months to one year of age

- Monday.* Egg; spinach purée; stewed prunes; cream of wheat cooked in milk.
- Tuesday.* Vegetable soup, with sieved peas, lentils or beans; apple, baked or stewed; custard made with powder.
- Wednesday.* Chicken or bone broth (or steamed fish;) sieved carrot; stewed apricot juice, semolina pudding.
- Thursday.* Egg; sieved raw tomato; grape pulp; ground-rice milk pudding.
- Friday.* Meat gravy or vegetable soup, with sieved peas; baked apple; cream of wheat.
- Saturday.* Steamed fish; cabbage water and purée; stewed prunes; semolina pudding.
- Sunday.* Irish stew gravy or chicken or bone broth or vegetable soup; marrow; baked apple; custard (powder).

## EQUIPMENT FOR MIXED FEEDING

A measure to hold 10 ounces.

One or two teaspoons of measured capacity. One drachm.

One or two tablespoons of measured capacity. Half ounce

Cups and saucers (and special baby dishes, if liked) of thick china, fireproof ware or composition (not enamel, glass, aluminium, or thin china).

Wire or hair sieve.

Saucepan (and steamer if possible).

Tray.

Large thick feeder to replace bibs.

All vessels must be kept specially for the baby's use, and scrupulously clean.

## CHAPTER VI

WEANING AND THE INTRODUCTION OF  
COW'S MILK

WHEN it is weaned the baby ceases to obtain its nourishment from its mother's breast and eats solid food and drinks from a spoon, cup, or feeding-bottle.

Weaning involves considerable adaptation on the part of the baby. Its digestive organs have to become accustomed to the new food and its whole system will be affected by the change in the type of its nourishment. There is also no doubt that weaning has a very marked influence on the emotional development. For these reasons it should be carried out as gradually and unobtrusively as possible. The ideal result is achieved if the baby ceases of its own accord to be interested in the breast.

**Age for weaning.**—There is not any exact age at which all babies must necessarily be weaned. There are great variations in the habits of different families and races in this matter; but in this country breast-feeding is usually continued for from eight or nine to twelve months.

In deciding when to wean a particular baby the baby's progress and the mother's ability to feed it adequately are the main considerations. Weaning should not be carried out while the baby is actively teething. It is dangerous to wean in hot weather or during the late summer months in Britain, when gastro-enteritis is easily contracted.

Most babies can be successfully weaned at any time after they have cut the first teeth at about seven months old. But in many cases the baby flourishes best if weaning is not begun until after the first eight teeth have appeared. That is between ten and twelve months of age. There is no reason why weaning should not be postponed still longer if all is going well.

**Other food besides breast milk** should be introduced many months before weaning is thought of (*see* page 45). The baby can be given the opportunity of learning to drink from a spoon, cup or saucer, by being offered water and fruit juice regularly from the first few weeks of its life. By the time weaning is started it should generally be able to drink milk easily from a cup. But there is no reason to insist on this. A baby will often prefer to suck milk from a bottle, and a bottle may very well be used for the milk feeds up to the age of eighteen months.



**Substituting cow's milk for breast milk.**—Unless the baby has been breast-fed for an exceptionally long time, when it is weaned it will require regular feeds of cow's milk in the place of the breast-milk. The cow's milk should be modified as suggested for artificial feeds (*see* page 63). At first the milk is offered instead of the breast at one feed a day. After a week, a second feed of cow's milk is substituted for a breast-feed. At least a week should be allowed for the baby and mother to become accustomed to each change, and longer if the baby takes the cow's milk well and the mother's milk supply remains adequate.

**Milk requirements after nine months of age.**—The breast-milk tends gradually to diminish as the baby takes more of a mixed solid diet and the breasts are used less. Up to the age of nine months the baby requires an increasing amount of milk, between 35 and 40 oz. of breast-milk a day being the highest requirement. After nine months old the amount of milk needed gradually falls to between 20 and 30 oz. a day at one year old.

**Between ten and twelve months of age.**—The baby can usually give up the 10 p.m. feed and obtain sufficient milk at four feeds a day, taking from 5 to 8 oz. at each feed. The quantity of milk needed now varies according to the appetite of the baby and the amount of other food it can take. During periods of active teething the appetite is less. A baby at this stage must never have solid food or milk forced upon it, but extra water containing sugar or fruit juice should be offered freely between meals.

**Effect of weaning on supply of breast milk.**—When cow's milk is substituted for breast-milk, the mother's milk will diminish as fewer demands are made on the breasts. If the process of weaning is carried on for a period of several weeks, there should be very little milk in the breasts when the last breast-feed is given. In this way all discomfort from engorgement is avoided.

**Dilution of cow's milk.**—Cow's milk as a drink is best given diluted up to one year of age. It can be tolerated

undiluted by some babies; but if it is too strong the baby's appetite diminishes: it may take less of the milk as well as other food or refuse to drink it at all, and it may even vomit after meals. The stools become pale and the urine concentrated and ammoniacal so that it irritates the skin. If these signs occur the milk must be given more diluted.

## CHAPTER VII

### ARTIFICIAL FEEDING

#### NECESSITY FOR ARTIFICIAL FEEDING

ARTIFICIAL feeding may be necessitated by some illness befalling the mother or by the supply of breast-milk failing to keep pace with the child's increasing needs. Or the breast-milk may diminish as a result of the mother having to undertake a greater number of activities. Temporary failure of lactation often results from worry or nervous shock; in these cases the milk often returns and she is able to continue successfully. If this is not realized, breast-feeding may be given up unnecessarily.

The decision to feed a baby artificially should never be made without the advice of some authority on baby feeding. The family doctor should be consulted. In certain cases he may advise a consultation or attendance at a children's hospital, or at a baby welfare centre.

In order to discover how much breast-milk the baby is able to obtain in the twenty-four hours, it is of great assistance to have a series of Test Feeds carried out for every feed of the day, or covering at least three feeds. It will then be necessary to decide how much artificial food will be required, how and when it is to be given, and what type of food is to be used.

#### TEST FEEDS

Test feeds may be carried out at home by the mother, if she has proper scales, or can be done at the welfare

centre or hospital, and some doctors make their own arrangements for test feeds. Test feeding at home is the most reliable method, for the baby is then taking its food under the conditions to which it is accustomed, whereas if the mother goes to another house or to an institution the baby may not suck in the usual way. In doubtful cases the test may be carried out on repeated occasions. It is not usually necessary to test feed more than once a week. It has a bad effect on both mother and child to weigh the baby repeatedly at its feeding-times for many days.

#### WHEN TO GIVE THE ARTIFICIAL FOOD

It may be found after test feeding that the breast-milk has failed completely, and that it will have to be replaced entirely by artificial food *at every feed* (see EARLY WEANING, page 58). In the meantime, the mother's milk may possibly be restored by suitable measures (see page 43).

**Complementary feeding.**—When breast-feeding can be continued but is not sufficient, artificial food will be given directly after the breast at one or more feeds during the day, to bring the total to that required. This is sometimes called complementary feeding.

When only a small amount of artificial food is needed it is best to introduce it once a day only, after the breast-feed found to be the smallest, or when the baby is particularly restless and unsatisfied at a feed (usually 6 p.m.).

If the additional food has to be given twice a day, 2 p.m. or 3 p.m. and 6 p.m. are the best times. When three additional feeds are to be made up, the third artificial feed will be either at 9 or 10 p.m. or, in the case of the baby which is fed three-hourly, at 12 noon.

As long as the baby can obtain any breast-milk whatsoever, it should never be allowed to miss that feed at the breast, for immediately a breast-feed is missed, there is a tendency for the secretion of milk to be discouraged.

The artificial food may be given before or after the breast, according to the behaviour of the baby. If the

baby does not obtain sufficient but will continue to suck and empty the breast well, the artificial food can be given after the baby has finished the breast-milk. If it becomes impatient and unwilling to take the breast, even if there is a certain amount of milk to be obtained, it should be offered the artificial food first, after which it becomes calmer and will take the breast. Or the breast-milk may **have to** be expressed and offered in a bottle or spoon for a time.

**Supplementary feeding.**—In the case of the mother who has to leave home for part of the day, *supplementary feeding*, that is, giving a complete artificial feed once or twice a day, has to be undertaken. The best arrangement would be for the mother to draw off the milk which remains in the breasts after each breast-feed before she goes. The milk so collected can be given to the baby from a bottle or cup during her absence. The milk will have to be kept in a sterilized jug, covered with muslin, and should be boiled shortly before using. If the supply is not sufficient it will have to be supplemented by artificial food at one or more feeds. But any breast-milk obtainable should be used. The mother should arrange to express the milk while she is away, at the regular feeding times, emptying both breasts. If possible, this milk should be collected and taken back for the baby.

### HOW TO GIVE THE ARTIFICIAL FOOD

The most satisfactory way to give artificial feeds, except in very small quantities, is by feeding-bottle (*see* page 59). But if only a small amount has to be given, and it is hoped that the breast-milk will be increased, the child is offered the artificial food from a spoon, in case it should take to the bottle and prefer it to the breast.

When the child has reached the age of Mixed Feeding (*see* page 45) it is opportune to let it take the artificial food from a cup or spoon.

**Giving the bottle.**—It is best for the baby that the artificial feed should imitate natural feeding as much as possible. The baby is held in exactly the same attitude as for a



breast-feed. If the baby is fed lying in its cot, or worse still, if it is left to hold its own bottle, it is liable to swallow air, owing to inadequate tilting of the bottle, and loses the advantage of having to suck against the pull of the bottle, when the nurse holds it. More important still, it loses the satisfaction of the personal contact with the mother or nurse.

The bottle is held in the right hand and the baby encouraged to take the teat right into the back of its mouth. The bottle is tipped up so that the baby can get a good grip and none of the air inside the bottle reaches the teat end. The baby may not be inclined to suck at first. To arouse its interest the teat should be partly withdrawn from its mouth, then replaced once or twice, till it grips it with its jaws and starts to suck.

#### EARLY WEANING

If it is necessary to wean completely before the baby has reached the age for solid food, this must be carried out in stages as gradually as possible to give the baby time to adapt itself. One feed at a time should be altered, allowing about a week for each stage. When the breast-milk has failed suddenly and completely, the bottle will, of course, have to be given at every feed at once.

#### ARTIFICIAL FOOD

Choice of a substitute.—It is wise to have expert guidance in the selection of a substitute for breast-milk. Cow's milk can be modified to provide a good substitute for breast-milk. Dried cow's milk can be made use of in a corresponding manner. Also there are several forms of dried milk modified as "humanized milk" which are easy to prepare by the addition of boiled water.

#### EQUIPMENT FOR ARTIFICIAL FEEDING

The following articles will have to be provided specially for the baby:—

Teats, three.

Bottles, at least two. Or a special six-bottle apparatus with a bottle for each feed and a stand which can be used for boiling them in a large saucepan.

Wooden bottle-draining stand (if special apparatus not used) or enamel jug large enough to stand the bottle in for draining. This can also be used filled with hot water to keep the bottle warm. Or a flannel bag may be used to keep the bottle warm while the baby is feeding.

Butter muslin, which can be cut into squares and edged with beads, should be used for covering the enamel jug, which should be taller than the bottle.

Enamel mug with lid, or cup and saucer (to cover it) for keeping the teats in, to protect the teats from the light, for light perishes rubber.

Bottle-brush, which should be hung in the air or stood bristles up when not in use.

Enamel, glass, or china graduated measure in which to mix the feeds. If a cow's milk mixture is used, a large jug (two pints) will be required to hold all the feeds for the day.

#### WHERE TO KEEP THE EQUIPMENT

The equipment may be kept on a table or shelf in a well-ventilated, cool, dry part of the baby's own room, away from dust. If there is no separate room for the baby, do not keep equipment in the living-room. The larder is more suitable, provided it is scrupulously clean and contains nothing but absolutely fresh food. Failing that, a cool corner of the kitchen, a well-ventilated landing, or a shelf or table in the bedroom or even the bathroom will do, unless it is also a lavatory. The tin of dried milk should not be kept in the bathroom, however, but in a dry drawer or cupboard.

#### CHOICE OF BOTTLES

There are two good types of bottle on the market:—

1. The flat-bottomed, cylindrical bottle with a wide neck and marked with graduations. It is used with one large teat.
2. The boat-shaped bottle with openings at both ends, a flat "valve" teat at one end, and a feeding teat at the other.

We need not consider tube feeding-bottles, which are impossible to keep clean and highly dangerous for this reason.

Bottle 1 is preferable because it stands up easily and can be warmed in a jug of hot water, and only one teat has to be used and kept clean. Bottle 2 is easily washed, but is more difficult to keep warm, and requires two teats.

## CHOICE OF TEATS

It is better to buy unpierced teats. A thick quality rubber (black), which will only deteriorate slowly, should be used.

To make a hole in the teat make a darning-needle red hot, and then pierce the teat, pushing the needle right in as far as its thickest part and drawing it out again immediately. Provided the baby is able to get enough nourishment without becoming over-fatigued, the smaller the hole in the teat the better for the baby's jaws, because the harder the effort it will have to make. If the hole is the right size, the milk should drip out at the rate of one drop a second when the bottle is held upside down. A larger hole may be necessary for a feeble baby that cannot suck very well, and in this case a hatpin should be used, or a large safety-pin. For a strong baby that sucks very hard, a smaller hole will have to be made, by using the tip of the darning-needle only. The correct size of hole in the teat will often make all the difference between successful and unsuccessful feeding. A large teat prevents air swallowing.

## CARE OF BOTTLES AND TEATS

It is of the utmost importance that bottles and teats used for the baby should be kept scrupulously clean; otherwise there is grave danger of the micro-organisms of disease developing in the soiled parts and of the baby becoming ill from a serious infection such as gastro-enteritis (diarrhœa and vomiting).

Method.—After the feed is over, first rinse the bottle in cold water, then wash it thoroughly in warm soapy water, using the bottle-brush. Rinse in hot running water from the tap and turn upside down in a rack to drain; or place upside down in a clean enamel jug. Just before a feed, rinse thoroughly with warm, *boiled* water or give a thorough rinsing with cold water from the main supply tap, if this is known to be germ-free.\*

Boiling the bottle.—The bottle should be boiled at least once a day. And if the child is ill, this should be done

\* The London water supply from the main, i.e. not from a cistern, is known to be sterile.

after every feed. Fill the bottle with cold water, place on a piece of lint or towelling in a saucepan of cold water, bring gently to the boil and allow to boil for ten minutes.

**Cleaning the teat.**—Sprinkle a little salt inside and on the teat and rub well round. Rinse off with cold running water, wash in warm soapy water, rinse again in warm running water and stand in a clean cup or enamel mug to drain. Cover with saucer. Rinse the teat before use.

**To boil the teat.**—Do this once a day. Put into boiling water and boil for one minute. Longer boiling will destroy the rubber.

Always rinse out the cup, jug, etc., in running water and drain before putting the teat and bottle into them.

#### COMPOSITION AND PREPARATION OF ARTIFICIAL FEEDS

It is not possible to prepare an artificial mixture which can take the place of breast milk completely. No way is known of replacing the protective antibodies or of substituting the exact form and proportions of protein, fat, and mineral salts. But it is desirable to imitate the natural food as closely as possible.

Artificial feeding in this country is usually based on the use of cow's milk in some form.

The relative composition of cow's milk and human milk in their main constituents is shown in the following table:—

	<i>Protein</i>	<i>Fat</i>	<i>Sugar</i>	<i>Mineral Salts</i>
	<i>per cent.</i>	<i>per cent.</i>	<i>per cent.</i>	<i>per cent.</i>
Colostrum (early Breast-Milk) .	2·2	2·8	7·5	0·3
Mature Breast- Milk . .	1·1	3·2	7·5	0·2
Cow's Milk .	3·5	4·0	4·5	0·7

The *protein* (curd) of breast-milk is more nutritious than that of cow's milk which, besides being in higher proportion, has a different composition, is less soluble, and forms a denser



curd, thus making it more difficult to digest. The *fat* (cream) of breast-milk is in a more digestible form than the cream of cow's milk. Most babies cannot tolerate the high proportion of cream in cow's milk, which is also apt to vary considerably. The *sugar* in breast-milk and cow's milk is of the same kind though present in different proportions.

*Mineral salts.*—There is about five times the amount of lime salts but only one-tenth the amount of iron in cow's milk as in breast-milk. If this insufficiency of iron is not compensated for, the baby will become anæmic after being fed on cow's milk for some time.

*Vitamins in cow's milk.*—There is sufficient vitamin C for the baby's needs in fresh cow's milk though less than in breast-milk. Vitamin A and vitamin D are also present, but the amount varies with the feeding of the cows, and whether they have lived in the sunlight or not.

Obtain the milk as fresh and uncontaminated as possible. *Certified milk* should be used if available and, as a further safeguard against infection, the feeds must be boiled or pasteurized after mixing. Cane *sugar* or a dextrin and malt-sugar mixture are better digested than purified lactose (milk sugar). For additional *fat*, fresh cream of known percentage, or fresh butter may be used, but a special cream manufactured for baby-feeding, such as Vitoleum Cream, 30 or 50 per cent., or New Zealand Cream, or a good brand of cod-liver oil emulsion, 30 or 50 per cent., is more reliable both as to proportion of fat and as to vitamin content, especially as regards the vitamin to protect against rickets. For additional *mineral salts* a bone and vegetable broth can be freshly made at home as follows:

Simmer 1 lb. of chopped veal bones,  $\frac{1}{2}$  oz. of malt vinegar and 1 pint of water for 8–24 hours; then add about a handful of vegetables of all sorts and simmer one hour more in a closed enamel pan. Strain and make up to one pint with boiling water. Keep in a cool place and do not use after 3 days in winter, or 1 day in summer.\*

\* Formula included with kind permission of Dr. Eric Pritchard.

The effect of boiling and pasteurizing cow's milk.—Boiling milk for three minutes or less does not destroy vitamin C and D, but vitamin A is destroyed. Longer boiling and pasteurizing (keeping the milk at a temperature of 145 to 150° F.) decomposes the vitamin C. Very prolonged or rapid boiling destroys all vitamin C, and concentrates the milk, reduces some of the protein, and makes the milk more digestible by softening the curd.

*Dried milk* usually does not contain vitamin C, but vitamin D and A are not affected by the drying process.

### PREPARATION OF COW'S MILK MIXTURES

The following rules are given only for general guidance. The actual proportions of the various constituents in making up the feeds must be decided specially for every baby in consultation.

**Modification: Dilution of cow's milk.**—For infants under three months or those having it for the first time: dilute the milk with an equal quantity of *plain or barley water* to reduce the proportion of protein. Add the required proportion of extra *sugar* as well as *bone and vegetable broth* to make up an adequate mineral content. After the baby has been taking the mixture for about seven days and is seen to digest it well, introduce *additional fat* gradually. At first add very little of it to one feed a day and give it in an extra feed every two or three days until the baby is able to tolerate the full amount advised. It is generally advisable to *dilute the milk rather less*, when the baby has become accustomed to the first mixture and it is clear that it can digest it, in order to provide a larger proportion of the protein. The proportion of cow's milk to water can be gradually increased to 3 : 2 and then to 2 : 1 by substituting milk for part of the water in each feed, ounce by ounce, allowing at least three days for each stage of the change.

*Fruit juice* in the form of orange juice, tomato juice, or lemon juice should be given as soon as artificial feeding is started, to ensure an adequate intake of vitamin C. Start with one teaspoonful a day and increase gradually

as soon as the baby takes it well by one teaspoonful daily until four teaspoonfuls a day are taken; lemon juice must be diluted and sweetened.

*Spinach juice* or green vegetable water (the water used for cooking fresh sprouts or cabbage without salt or soda) or vegetable purée should also be given to provide *iron* as soon as the baby is used to the milk mixture and the orange juice (which contains some iron). From the age of three months all babies should be given extra iron in some form. One to four teaspoonfuls of vegetable juice a day is sufficient.

The necessary *vitamins*, apart from vitamin C, will be provided by the fresh cow's milk, even if boiled, and the cod-liver oil emulsion. The baby may prefer to take the fat emulsions and broth by spoon separately from the feed—either just before or just after the bottle. The vegetable juice, if not included in the broth, should be given in the same way. The fruit juice can be given between feeds.

#### CARE OF INGREDIENTS FOR COW'S MILK MIXTURES

The milk should be kept in a sterilized jug (boiled or scalded before use), covered with muslin, and kept as cool as possible. A water cooler can be simply arranged by standing the jug in water in a basin and having the muslin covering the jug long enough to dip into the water all around.

#### DRIED MILK MIXTURES

The dried milk preparations are very successful in baby-feeding and especially suitable when it is difficult to obtain reliable fresh milk or to keep it absolutely clean and cool. During hot weather and the late summer months, and when travelling abroad, or in the tropics, in which circumstances there is grave risk of infective diarrhoea from fresh cow's milk, a dried milk is especially indicated.

**Dried whole milk.**—Choose a reliable brand. Ascertain from the literature what proportion of water should be added to the particular brand to reconstitute whole cow's milk. This is usually 8 parts of water to 1 of milk powder. Prepare the mixture on the same principle

as fresh cow's milk mixtures: mixing the dried milk with sufficient water to reconstitute cow's milk, and then adding water, sugar, emulsion, and broth in the same proportions as for cow's milk mixtures.

**Humanized dried milk.**—When water is added according to the directions, the proportions of the mixture resemble those of breast-milk but are usually low in fat content.

**Dried milk with added iron.**—Whole dried milk or humanized dried milk containing extra iron is especially valuable for artificial feeding.

Fresh fruit juice and broth and cod-liver oil must be given as additions when dried milk and dried humanized milk mixtures are used.

### QUANTITY OF ARTIFICIAL FOOD

The quantity of breast-milk required for the day by babies at various stages can be calculated by the method on page 40. In completely artificial feeding it is best to use a mixture which is of similar nutritive value to breast-milk. If it is less nutritious—it is for the expert advising to decide this—it will be necessary to give rather more. If the food is indigestible it may lead to wind, colic, loss of appetite, sickness and undigested and loose stools, or to constipation, fretfulness and sleeplessness; and the baby will not gain weight steadily. If it is insufficient, the baby will not progress as it should, and if too much is being given the weight will increase too rapidly for health.

The total quantity required in the day should be divided by the number of feeds, and an equal quantity given at each feed.

### TO MAKE UP ARTIFICIAL FEEDS

If possible mix the feeds for twenty-four hours at one time. Sterilize all the equipment before use, either by boiling or by washing out with boiling water.

All measures must be carefully checked and standardized before use. Any teaspoons used and the measures supplied in dried milk tins must be carefully checked and the *weight* of dried milk and also of sugar which they hold measured by weighing on a reliable balance.



**Fresh milk mixtures.**—Measure milk in a sterilized ounce measure and pour it into the mixing jug, or the saucepan if the mixture is to be boiled. Measure the water next in the same measure and add it to the milk. Measure the sugar in a dry drachm measure (1 drachm equals  $\frac{1}{8}$ th of an oz. by weight) and add it to the milk and water. Stir well and bring to the boil, stirring once or twice. Pour into a sterilized jug and cool by standing in a basin of running water. Keep cool and covered till required. If the Soxhlet apparatus is used, pour the mixture into the bottles and stopper them with tufts of cotton-wool before sterilizing.

If the feed is being prepared just before use transfer it at once to the feeding-bottle. Otherwise the necessary quantity is poured from the jug into the scalded bottle at feeding-time, and warmed up by standing in hot water.

**Dried milk mixtures.**—Measure out the dried milk and sugar with the drachm measures into a clean jug. Measure out the water and add a little of it to mix the powder to a smooth cream, then add the remainder. Stir and transfer to the saucepans or bottles and sterilize as described above.

**Addition of fat emulsion** should be made at the feeding time. Pour the emulsion into a scalded measure or spoon, from which it is stirred into the mixture or given direct to the baby.

The temperature of the feed should be at blood-heat when the baby takes it. A drop may be tested on the back of the hand. The water surrounding the bottle should be at 100° F.

## CHAPTER VIII

### BATHING AND DRESSING THE BABY

THE baby should be bathed all over every morning, and in the evening have its hands, face, neck and napkin area washed. On both occasions the clothes should be changed completely. Too much washing robs the skin of its natural oil and gloss and makes it dry and subject to

rashes. On the other hand, regions which are exposed to dirt must be kept clean in order to prevent irritation.

The best time for the morning bath is just before the nine or ten o'clock feed. The evening wash should be given before the six o'clock feed, after which the baby should be roused as little as possible, so that later it will get into the way of sleeping right through from 6.30 p.m. to 6.0 a.m.

To bath a baby really well is a difficult process and calls for skill and intelligence. It must not be undertaken at a time when one is tired or sleepy.

How long to spend over the bath.—From twenty-five to thirty minutes should be allotted for the morning bath. This allows time to get ready beforehand, undress the baby, bath it and dress it and tidy away. A good nurse will take fifteen to twenty minutes over the actual undressing, bathing and dressing. The more quickly this is done the better, provided it is carried out gently and thoroughly. As little handling as possible is best when dealing with a young infant.

For the evening wash 15–20 minutes is sufficient. This allows five to ten minutes for handling the baby.

If the mother is breast-feeding her infant and looking after it herself, she will postpone tidying up till after she has fed the baby and put it back to sleep in its cradle. If there is a nurse she can tidy up while the mother is giving the feed.

### PREPARATIONS FOR THE BATH

It will save time if the equipment for the bath is placed in position before the baby is lifted from the cradle. If one is single-handed it is essential to have everything within reach.

Try to obtain a temperature of about 70° F., closing the windows and lighting the fire if necessary. After the first week gradually let the room be cooler as the baby becomes more active, till an ordinary room temperature of 60° F. is reached. Choose a sheltered corner out of direct line of draught; a screen may be useful.

Place the clothes-horse with the baby's bath towels and face towels and nurse's flannel apron on one fold, baby's change of clothing, including napkins, shawl and bib on the second fold, and leaving the third fold empty to receive discarded clothing. Arrange the clothes in the order in which they will be required, i.e. vest uppermost. Hang the washing flannels on the lowest rung below the towels. Get out the bath and stand and arrange the nurse's chair in a convenient position, with the remainder of the equipment within easy reach. If the baby is bathed near the fire the nurse should sit so that its head is away from the heat.

On the nurse's left will be a small table or chair, carrying a clean tray on which are arranged the dressings for the baby's cord, e.g. the gauze pad, the powder in sifter or box, the binder, large needle threaded with double cotton (40) stuck into a special needle cushion or case, and blunt-ended scissors. On the dish are placed two small tufts of cotton-wool to clean the baby's nose. There is no need for special sterilized swabs to clean the baby's eyes. When its face is washed, it closes its eyes, its eyelids only being touched by the flannel. The eyeball is washed naturally by the baby's own tears. Beside the tray, place the baby's hair-brush and the bath thermometer. The soap-dish with soap and the small chamber-pot are placed, not on the floor, but either on the bath stand or on some convenient shelf or chair to the right of the nurse. Also on her right, but slightly behind her and on the floor, the enamel bowl for receiving wet or soiled napkins is placed.

The nurse should now proceed to wash her own hands, and put on her rubber apron (the flannel apron should be put on after all is ready), rinse the bath, using a special nail-brush and hot running water, and fill it under the tap, if convenient, or using jugs for hot and cold water. Pour in water, first cold, then hot, to a depth of about 3 in. It should have a temperature of 100° F. registered by the

bath thermometer. Set the jugs with some hot and cold water to the right of the bath in case more has to be added.

*Alternative method.*—It is quite a good plan, and one which is becoming popular, for the nurse to stand up to bath the baby and have the bath fixed high at her elbow level. The baby is laid on a towel on the table to the side of the bath and undressed, dried, and dressed there instead of on the lap. This arrangement is less intimate than sitting with the baby on one's knee but makes it easier to be quick and efficient and as the baby lies safely on the table there is no need to give attention to balancing it.

*How to take the baby out of its cradle.*—Open out the blankets gently and deliberately, and pick up the baby carefully. Do not drag it out of its bed as though extracting it from a cocoon. If it wakes up, give it time to have a good stretch. Stretching is a young infant's chief form of exercise and is good for its muscles and lungs. If the baby is awake only talk to it softly, not in a loud voice, as it is quite inadvisable to rouse it or stimulate it in any way before its bath. The baby can often be picked up and undressed and a lot of the actual washing accomplished before it is fully awake. Under these conditions it generally stands the bath very placidly. If it cries during the bathing, something in its management is at fault, such as a too sudden awakening, rough handling, or over-exposure.

*Picking up the baby.*—Slip the left hand under its shoulder and down its back until the buttocks rest on the palm of the hand and the head lies against the front of the elbow. Use the right hand to steady the baby as it is lifted up until it is held on the left arm against the chest. With her free hand the nurse should pull down the clothes and arrange the shawl so that the feet are fully covered. Her right hand can then be free for opening doors or holding on to the stair bannisters, etc. (Fig. 4).



When going round corners, into a room or along a passage, the free hand should be used to shield the top of the baby's head from bangs or collisions. A good nurse does all these things automatically.

The baby is best carried in the horizontal position with its head and shoulders slightly raised. When it is older it can be held in a more upright position.

**Undressing the baby.**—The nurse sits on the chair with the baby on her lap. She must arrange herself so that her knees are level, using, if necessary, a footstool. The baby lies on its back with its head to her left.

First take off the napkin (*see* page 78 for method). Then the baby may be held out as described on page 81.

If the clothes undo at the back, roll it gently on to its face.

To turn the baby on to its face.—Pass the left hand behind the baby's back, and, with the fingers in its left armpit, grasp it firmly round the shoulder. Hold the right side of its chest with the other hand and carefully roll it over. See that it lies comfortably with its face turned a little to one side. Be careful not to let the baby's arms become stretched down to its sides, but keep them well forward and bent at the elbow. Undo the gown,



Fig. 4.—How to carry the baby.

petticoat and vest altogether. Loosen the shoulders and slip the fingers down inside the baby's sleeve to withdraw its arm, at the same time slipping the cuff off with the other hand. Turn the baby on to its back again. Gently push its clothes down as far as possible, then, lifting it by its feet with the fingers between them so that they do not rub, raise its buttocks and draw the clothes off.

**Binder.**—When the baby is bathed the binder should be taken off; for the evening wash it is not disturbed. To remove the binder, gently roll the baby on to its right side and, using the blunt-ended scissors, cut the stitches. The nurse can unroll it without lifting the baby, by separating her knees slightly and passing her hand under the baby in the hollow thus formed. Wind the binder up as it is taken off. Leave the cord-dressing in place for the moment, and take the temperature of the bath again and add a little hot or cold water to make it 100° F.

### GIVING THE BATH

**Cleansing the nose.**—Use a twist of cotton-wool moistened in the bath to remove any visible grime from the opening of either nostril. Be careful not to push the swab up into the nostril in case mucus and grime may be forced up to the inner recesses of the nose. If portions of dry discharge are left higher up the baby will eventually sneeze them down, which is the safest and most healthy way for the nose to clear itself.

**Washing the face.**—Wet the face-flannel in the bath and squeeze it out. Wash the baby's face with soft wiping movements of the right hand, keeping the head steady with the left. Start by wiping each eyelid from within outwards (from the centre of the forehead out to each temple). Rinse the flannel and squeeze out, then wipe each side of the nose and around the mouth. Do not touch the red part of the lips as this is cleaned naturally by the baby's saliva, and if anything touches the lips the baby at once tries to suck it into its mouth. Next wash

the cheeks, the backs of the ears and under the chin. Finally squeeze the flannel very dry and clean the creases in the shell of the ear, using the finger covered with the flannel. Never use soap on the inner surface of the baby's ear.

**Drying the face.**—Dry the face carefully, using a soft face-towel, with the same gentle wiping movements as in washing it. The reason for doing all this so carefully is that the skin of the baby's face is extremely sensitive and any but the lightest touch may cause distress.

**Washing the hair.**—Support the baby lying along the left arm with its head over the bath and the back of its head firmly grasped in the left hand. With the rinsing flannel in the right hand squeeze water over the top and back of the baby's head. Lather the hair with the soapy right hand and rinse it with the flannel. Replace the baby on the lap and dry the hair, rubbing gently with the second face-towel. Dry carefully the insides and backs of the ears and especially the groove between the back of the ear and the head, which if neglected is liable to get sore.



Fig. 5.—Washing the baby's hair.

A young baby's hair should be washed every time it is bathed. After about three weeks it can usually be kept clean by being brushed with a clean brush, and washed twice a week.

**Washing the baby's body.**—Now remove the cord-dressing. Wet and soap both hands and gently pass the fingers around the neck, then the thumbs into the armpits, next to the bend of the elbow and into the palms of the hands. The baby will keep its hands clenched tightly and the nurse's soapy thumbs must be gently pressed into the palms causing the fists to relax so that the inside of the baby's hands and fingers can be soaped. Renew the soap on the hands, if necessary, and, using both hands, gently soap the groins, the buttocks, the groove behind the anus, also the creases of fat on the back of the thighs, and finally, the backs of the knees and the toes. Soap is only applied to parts which are specially soiled or where one skin surface touches another and sweat or peelings of skin might collect. It is better not to soap the skin in other parts.

**Putting the baby into the bath.**—Rinse the hands and lift the baby carefully, holding its left shoulder with the hand passed behind it as before. The baby's head rests in the crook of the nurse's elbow; her right hand is placed under its buttocks, her fingers encircling its left thigh. This is a very secure method of lifting a soapy baby. Lower the baby into the water, let its buttocks rest on the bottom of the bath and keep its head and shoulders well up with the supporting left arm and hand. Rinse off the remainder of the soap, first from the baby's hands in case it should put a soapy hand up to its eyes. As soon as it shows signs of being able to enjoy its bath, allow it to linger in the water for a minute or two to kick and splash. Allow longer for this exercise as the baby gets older. Reach for one towel with the right hand and spread it on the lap. Then, holding the baby as before, lift it steadily out on to the towel. With the wet flannel, carefully wipe



away any remaining soap from the creases. Use the second towel to envelop the baby up to the neck and dry with gentle patting movements. Make sure that the creases are quite dry. Turn the baby over on to a dry piece of the towel. Its back will be found to be practically dry. A few extra touches will be required for the backs of the knees, the neck, behind the ears, and between the buttocks. A trace of powder may be dusted into the grooves but it is not necessary if the baby is properly dried and the skin healthy. Hang up the towels, easing the under one from beneath the baby, which now lies on the flannel apron. If a wrap-over vest fastening in front is used, it should be slipped on to the baby's arms from the back. Turn the baby on to its back again, using the same method of holding it. Powder the creases in front if necessary.



Fig. 6.—Putting the baby in the bath.

Care of the nails.—Clean the nails by gently squeezing and rubbing the finger-tips with the flannel in warm water, pressing from the base towards the edge. Never insert anything to scrape under the nail. About once a week the nails will require careful trimming with clean, sharp nail-

scissors. The finger-nails should be cut rounded and the toe-nails straight across.

### DRESSING THE BABY

Putting on the binder.—Apply zinc, starch and boracic powder freely to the navel and cover with a clean dressing. Keep the baby steady with the left hand under its back, the left thumb holding the dressing in place, and pick up the rolled binder in the right hand. Place the free end of the binder on the dressing and hold in place with the left thumb. Wind it round the baby's abdomen, to hold the dressing on firmly but not tightly, encircling it twice, and finishing up on the left side. Turn in the end of the binder. Half roll the baby towards you on to its right side and, pinching up the join of the binder with the left finger and thumb, so that it is clear of the baby's skin, secure it by four or five large over-and-over stitches. Snip off the end of the thread and return the needle and scissors at once to the housewife.

The cord shrinks up and drops off between the fifth and tenth day. The nurse must never pull it or hasten its separation in any way, as this may lead to umbilical hernia (rupture). The umbilicus requires care until healed and retracted between the end of the second and the fourth weeks, after which no dressing should be necessary.

Putting on the clothes.—With the baby on its back, put on the napkins in the usual way (page 79), then the vest, if a closed one, the dress and jacket. Slip the vest over the baby's head, insert the baby's hands into the vest while it is still bunched up round the neck. Use one hand inside the vest to guide the baby's hand into the armhole and pass the fingers of the other hand in at the wrist to meet the baby's hand and hold it so that the fingers do not catch in the material as the sleeve is eased on. Pull down the vest in front and fasten loosely. Do the same with the frock. Turn the baby on to its face, pull down and fasten the garments and put on the jumper or jacket from the back. Finally put on the baby's socks and brush its hair.

## PUTTING THE BABY TO BED

After the baby has been fed, held up for wind and, if not too tired, held out, it should be put to bed. If it is put to bed and firmly tucked up it may very likely cry for a little while and then suddenly fall into a sound sleep.

## PREPARING THE CRADLE

The baby must be put down in a safe place after its feed while the cradle is being prepared, if the mother is single-handed. For a tiny baby it is safe for it to lie on the bed, but if it has reached the rolling stage, no place is safer than the floor, on a clean play-rug, towel or blanket. A cushion will divert any draught.

Spread the enveloping blanket right across the cradle so that it hangs over the sides and end and comes up to the lower edge of the pillow. Place an under-blanket on the mattress with the mackintosh across it, nearer the head end, and a napkin or flannelette sheet covering the mackintosh. Pick up the covered mattress and press it down into the cradle on the big blanket. Put in the pillow if used or spread a folded square of butter muslin where the baby's head is to lie, and the bed is ready.

## PLACING THE BABY IN THE CRADLE

Be sure the baby is dry and comfortable and its clothes are not rucked up. It is not necessary to turn the clothes up at the back if a flannel square is used over the napkins. Wrap the baby in the small shawl and lay it gently in its bed. See that its ear is not pushed forward and that its nose is clear of the pillow. Put it down on its side, choosing a different side from the one it was lying on when it was last in the cradle. A change of sides helps its body to grow symmetrically and allows the air to get to both sides of the face. The piece of gauze and, later, the pillow-slip should be changed frequently.

One flap of the large enveloping blanket is folded across the baby and tucked in firmly at the other side and at the foot. Then the second flap is brought across and tucked in at the

opposite side, the lower end being turned up over the baby's feet. The coverlet is placed across the cradle.

In cold weather a small over-blanket is tucked round the baby inside the enveloping blanket.

If the baby wakes after one or two hours and before the next feed is due, see that it is dry, and turn it on to its other side without taking it out of the cradle.

#### MAKING UP THE COT

When a cot is used, the large mackintosh sheet is first spread directly upon the mattress and over this the under-blanket is tucked in. The small mackintosh strip is placed across the upper end of the bed, below the edge of the pillow, and is covered by the sheet. The pillow is placed in position; next the over-blankets, one or two according to the weather, are tucked in well at the sides and end and arranged so that there should be no fold at the baby's chin, and finally the counterpane is spread.

### CHAPTER IX

#### TRAINING IN CLEANLINESS

##### CHANGING NAPKINS

ONE of the most important duties of the nurse is to keep the baby clean. The napkin should be changed whenever it is wet or soiled, unless the baby is fast asleep. If this is always done the baby will gradually become accustomed to being kept clean and will find some way of attracting attention when it needs it. If a damp napkin is not changed, it will draw warmth from the baby's body like a cold poultice. If the skin remains wet for any length of time, it is likely to become sore. It is even worse for the skin to be allowed to remain soiled by contact with a motion. Rashes in the napkin area are always due to insufficient care and cleanliness. If the napkins are washed in any form of soda and not rinsed completely, a soda-rash may result.



The greater the amount of fluid a baby takes the more urine it will pass. Within the first hour after a feed, if the baby is awake, urine will be passed every ten or twenty minutes. But two or three hours after a feed it will lie awake for half an hour or longer without wetting. If the baby has fallen asleep immediately after its feed without emptying its bladder, it will often wake up in about an hour to pass urine, and then be ready to sleep again.

Once the baby has been put down in the cradle it should not be picked up to be held out but, if it is wet, its napkin should be gently changed. The most likely times for it to require this are soon after a feed if it is trying to doze off, when the changing of the napkin will help it to go to sleep comfortably, and in between the feeds, if it wakes up.

To find out whether the napkin is dry, slip the hand gently under the baby till the part of the napkin under its buttocks can be felt. It should be replaced by a clean one with as little disturbance as possible, with the baby lying in its cot or in the perambulator. When the baby is taken up to be fed or bathed, it can be done on the knee, or on the bed, or in a big armchair.

**Method.**—Unwrap the blankets and shawl and gently arrange the baby on its back. Using both hands, unpin the safety-pins and fix them at once in the side of the apron, being careful to close them up. Open out the pilch and outer napkin and unfold first the central point of the inner napkin, then the side corners. If there is a motion this can be taken up by rolling the central point inwards under the baby to cover the soiled part of the napkin. Wipe the skin gently with the corners, rolling these parts over as they become soiled, at the same time raising the baby's buttocks slightly from the bed by lifting its feet with the left hand.

Before removing the soiled napkin prepare a basin of warm water, soap and flannel, and have ready the small changing bowl, clean napkins ready folded, and an extra napkin of Turkish towelling. Slip the extra napkin of Turkish towelling under the baby's buttocks, wash and

rinse the soiled parts gently, and dry carefully, using the corners of the extra napkin on which the baby is lying.

If the baby is only wet it will not have to be washed unless the skin is specially irritable.

If the baby is awake and lively it is a good plan to let it lie and enjoy a kick before putting on the clean napkins.

#### PUTTING ON THE NAPKINS

Fold a thick outer napkin in half to form a double oblong and place upon it a muslin napkin, folded into a

triangle of four thicknesses, as shown in Fig. 7. Pick up the napkins together and slip them under the baby with the right hand, using the left hand to raise the feet as before. Smooth them out and see that they come well up under its back.



Fig. 7.—Putting on the napkin.

Fold the side corners of the inner napkin across the baby's abdomen and keep them in position with the left hand. Fold up the central point between the legs, making sure that the napkin is not pressing tightly and that there is no uncomfortable pull. It should fit snugly round the baby's abdomen without squeezing it. Fold the corners of the thick napkin across and pin both napkins with one safety-pin, inserted from side to side about  $\frac{1}{2}$  in. from their upper edge. Keep the fingers of the left hand between the napkins and the baby's abdomen to prevent any risk of its being pricked.

**Over three months.**—For babies of over three months the thick napkin is folded in a triangle so that its inside point

falls short of its outside point (Fig. 8, left). In this way there is a double thickness under the baby but only one layer between its legs. The thin napkin is folded into four thicknesses and placed on the thick napkin as shown.

Older children.—For children who are beginning to sit and stand, fold the outer and inner napkins to form an oblong, and slip one end of the oblong up under the baby's back, one end in front. Fasten with a safety-pin at either side of its waist, picking up the front and back edges of the napkin face to face. (Fig. 8, right.)

Alternative methods.—It is possible to discard napkins for younger babies and use a bag of chaff on which the baby lies. This plan is said to be very good. There is also an arrangement by which the napkin is thickened by means of pockets to contain chaff or other absorbent material.

Recently, absorbent napkins, to be burnt after use, have been placed on the market, but as yet it has not been possible to produce them in adequate sizes at an economical price.

#### HOLDING THE BABY OUT

The baby may be held out when it has just woken up from a satisfactory sleep and is in a serene state of mind and still dry; or directly after it has been fed, provided it is not very tired. At these times both bowels and bladder are likely to be most active and response is likely

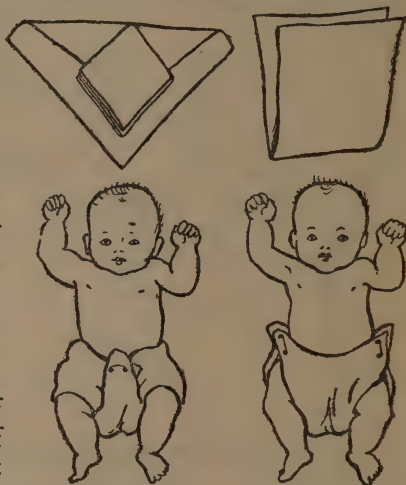


Fig. 8.—Two methods of putting on the napkin.

to be obtained. Not more than three motions a day usually occur in a healthy baby and, in many cases, only one a day. When the baby has got used to the attitude and sensation of being held out, an automatic habit develops so that it becomes habitually "clean," passing the motion only when it is held out. It does not become "dry" till much later, though as it gets older it tends to be able to go for longer periods of time without passing urine.

To avoid doing harm observe the following rules:—

1. Never hold out the baby if it objects.
2. Do not wait for more than five minutes.
3. Never rouse the baby from its cradle to be held out except at bath- or feeding-times.
4. Do not hold out just after the baby has wetted its napkin.
5. Remember that to keep a baby in one attitude inevitably tires it.

**Attitude in which to hold out.**—In the first training of the very young infant the least tiring and disturbing position is for the baby to lie on its back on the mother's lap, with its head on her left knee, and the chamber-pot or soap-dish on her right knee, just under the baby's buttocks. The mother must lower her right knee a little. She holds the baby's feet with her left hand and steadies the chamber with her right (Fig. 9).



**Fig. 9.**—Holding out the very young baby.



After it is three months old, the baby can be held very much as though it were being nursed, its head and back supported in the hollow of the mother's left arm, its body sloping, and its buttocks resting on the chamber-pot which is held on her lap. She bends the baby's thighs up slightly with her right hand, her little finger intervening between its buttocks and the rim of the chamber. The baby should be comfortable; there should not be any strain or forcible bending of the thighs, and the weight of its body should not press on the chamber.

In a third method the baby is held in a sitting position with its back against the chest of the mother or nurse, who grasps the infant's thighs and holds them bent up. The chamber-pot is fixed in her lap and the baby's buttocks rest against the back rim. Several features make this *an undesirable method*: the mother cannot see the baby's expression; the position is a strained one; the baby is helpless in this entirely unnatural attitude; and the action of the bowels is forced in a mechanical manner. It is very possible that repeatedly to hold the baby thus may favour the development of piles and prolapse of the rectum.

## CHAPTER X

### THE DAILY ROUTINE

**Fresh Air.**—There should be free ventilation and moving, fresh air from open windows in the baby's room. The windows of the room should be wide open except in stormy and foggy weather, and on cold days when the very young baby is to be bathed. As soon as it is old enough, the baby is best brought up out of doors in a cot on a sheltered balcony or veranda, or in a perambulator in the garden. It need only be brought in for bathing and feeding and at night, and in the summer the napkin can be changed without bringing the child in. A minimum of four hours should be spent out of doors daily.

A thermometer should be kept in the baby's room, as a guide in deciding what clothes and coverlets to put on.

**Cool air and draughts.**—There need be no fear that cold air and draughts will be bad for the baby if its body is warm. Cool, moving air keeps the nose, air-passages and lungs in a healthy condition, and a baby that has the advantage of being kept in a fresh atmosphere day and night is unlikely to catch colds. But all babies should be protected from contact with anyone suffering from an acute cold. If nurse or mother develops a cold she will safeguard the baby by wearing a gauze and paper mask when handling it.

### SUN AND AIR BATHS

The adaptability of the baby's body to changes in temperature will only develop well if the skin and circulation are given the opportunity to exercise their functions. This is achieved by exposing the body to the air, at first for short periods in a warm atmosphere and gradually for longer periods in cooler air. The baby is uncovered twice a day for the bath and evening wash. First the bathing is done as quickly as possible in a warm room. As the baby gets older, it enjoys splashing in the bath and kicking on the nurse's knee. A good nurse will allow it to indulge in this exercise and will arrange to keep the room cooler as soon as the baby can keep itself warm. If it is being too much exposed, the hands and feet feel chilled or look slightly blueish. The body should always feel warm to the touch.

The air-bath is a development of the kicking interval and is very conveniently arranged for just before or just after the morning bath. In suitable weather a sun-bath can be given at the same time. There is less risk of sunburn before the bath, as the protective oils have not been washed off the skin.

**Method of sun-bathing.**—Give the sun-bath in the morning before the regular bath. Choose a warm day and let the baby lie naked in its cradle, or on a blanket on a table or the floor close to the open window, so that the direct rays of the sun fall on it. At first arrange it so that the shade falls across

the head and body and only the legs are in the sunshine. Expose, for one minute first, the front and then the back of the legs, gradually including the trunk, and later the arms, every day allowing one more minute to each part, until the baby is having a complete sun-bath of five minutes to the front and five minutes to the back. The baby may need a bonnet with a frill or a wide-brimmed hat, to shade the upper part of its face and the back of its neck.

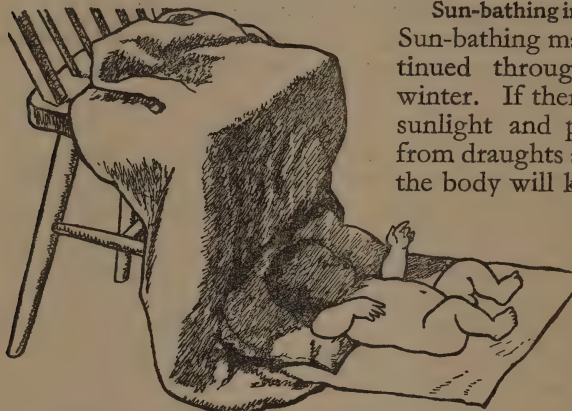


Fig. 10.—Giving the baby a sun-bath.

**Sun-bathing in winter.**—Sun-bathing may be continued throughout the winter. If there is good sunlight and protection from draughts and wind, the body will keep quite

warm,  
even  
though  
the tem-  
perature  
of the  
air is at  
freezing-  
point.

**Advantages of sun-bathing.**—The baby who has regular sun- and air-baths carried out carefully, becomes brown, firm and lively, and will rarely catch colds. The greatest advantage of sun-bathing is that it prevents rickets.

#### USE OF THE PERAMBULATOR

No advantage is to be gained by putting the baby out during the first two weeks. Provided it is in a healthy airy room, the subdued light and quiet, as well as the more equable temperature indoors, will allow it to adapt itself to the very important conditions associated with its feeding and nutrition, without extra strain being thrown on its heat-producing organs, or over-stimulation of its nervous system. It takes at least a fortnight for the

healthy baby to "get under way." If it is progressing well, it may, during the second week, be placed nearer the open window in its cot. As soon as it seems to be making steady progress the question of putting it out of doors will arise. Choose for the first occasion a pleasant, calm day, neither excessively hot nor cold. If the baby keeps warm and sleeps well it can remain out of doors for the whole of the morning and afternoon but should not be kept out later than one hour before sunset. A baby of over three months can be left out till sunset or even later, and in the summer can be out of doors from the time of its first feed in the morning.

**Choice of position.**—The chosen place should be as quiet as possible, secluded from the interruptions of visitors and passers-by, and out of reach of dustbins, brooms, drains or kitchens or the dust from the road. The perfect position is one where the baby will have fresh air and light, without glare, and nothing to disturb it.

**Hot days.**—Apart from actual injury to the eyes and irritation to the nervous system from the glaring light, a baby out of doors in the summer may often be restless and fretful because it has got much too hot, and it will be found that it can be kept cooler and will sleep better indoors in an airy room.

If it is necessary to take the baby out on very sunny days, the best protection from the glare and heat is a light awning or canopy with a dark green lining, and on very hot days the baby may lie under the awning wearing merely one garment.

**Cold days.**—There is no need to bring the perambulator in in snowy weather so long as the snow does not actually fall on to the baby. Dry, frosty weather is healthy. Only when there is an extremely cold, piercing wind is it found that the baby cannot be kept warm, and it should then sleep indoors by an open window.

**Rainy weather.**—The perambulator can usually be left out of doors in spite of the rain, with the hood right up, the storm cover on, and turned so that the rain does not blow in under



the hood. It is better, however, if the rain lasts, for the baby to be indoors in a room with widely opened windows.

Fog.—A child should never be taken out in a fog. In foggy weather the windows must be closed and, unless it is very warm, it is best to have an open fire alight in the room to promote free ventilation.

#### PUTTING THE BABY IN THE PERAMBULATOR

The baby is dressed as for its cot. Its jacket should have long sleeves. Make up the bed in the perambulator in the same way as in the cradle (page 76), and place the baby in it, wrapped in its small shawl; cover with the two flaps of the large enveloping blanket, and the pram rug.

On very cold days it may be necessary for the baby to wear a thicker jacket, wool leggings instead of its usual socks, and a cap. A hot-water bottle may have to be put in the perambulator. Make sure that it is covered and that at least one thickness of blanket intervenes between it and the baby.

#### CARE OF THE CLOTHES AND BEDDING

It is important for the baby's health, as well as appearance, that all its clothes and bedding and toilet things should be kept fresh and clean. Washing should be done daily if possible, as material allowed to remain soiled for any length of time does not wash well. Any garment or blanket that is wetted by the baby should be rinsed at once and hung out to dry, pending the opportunity to wash it thoroughly.

Washing Napkins.—Wet napkins are placed in cold water as soon as they are removed. Soiled napkins are sluiced in running water, using the brush, and either washed free from stains immediately or placed in a special bucket in cold water to be washed after other napkins.

Wash napkins by placing them in boiling soapy water (using soap-flakes free from soda, or shredded curd soap); soak them till cool enough to squeeze and wring out, and rinse one by one, in clean warm water. Wring very dry and peg flat on line out of doors or indoors on an airing rack.

## SUGGESTED DAILY ROUTINE

## FOR A BABY OF 2 MONTHS, FED 4-HOURLY

BABY	MOTHER
5.45 Wakened, held out or changed.	5.45 Cup of tea or glass of milk.
6.0 Fed (in mother's bed), held out or changed after.	6.0 Feeds and attends to baby.
6.30 Sleeps indoors or out.	6.30 Sleeps.
	7.30 Gets up, cold sponge, dresses. Breakfast.
	8.45 Washes napkins.
9.30 Changed or held out; undressed, sun-bath. Bathed. Dressed.	9.15 Sees to baby.
10.0 Fed. Held out or changed.	10.0 Feed. One glass of water.
10.30 Sleeps out of doors.	10.30 Housework, washing, etc.
	11.0 Cup of malted drink.
12-1 Orange juice when awake. Changed or held out.	12.30 or 1.0 Lunch.
2.0 Fed. Changed or held out. Out in pram for sleep.	2.0 Glass of water while giving feed.
	2.30 One hour's rest.
3.30 Out for walk, or in garden.	3.30 Out for walk, or in garden.
4.30 Changed, if wet, and left in pram outside. Orange-juice or water when awake.	4.30 Tea.
5.45 Washed and changed.	5.15 Sees to baby.
6.0 Fed. Held out or changed.	6.0 Glass of water while feeding.
6.30 To bed.	6.30 Tidies up and washes garments and napkins.
	9.30 Bath. Prepares for feed.
10.0 Fed (in mother's bed). Changed.	10.0 Glass of malted drink before feed.
	10.30 Bath and bed, if not at 9.30

Wash twice a day, to prevent them from becoming stained and to avoid an unhygienic accumulation of dirty napkins.

Boil stained napkins in soapy water (not in soda). Remember that sunlight is a bleaching agent and disinfectant and make use of it whenever possible.

## CHAPTER XI

### THE OLDER BABY

#### THE BABY OF THREE MONTHS TO SIX MONTHS OLD

By the time it is three months old the healthy baby has rosy cheeks, and new hair is beginning to grow. The ears contain wax. It has become plump, its body and limbs are firm, with muscles well filled out. It can turn its head to look at anything that interests it and recognizes people who are often with it. Its hearing is more acute and it will notice a strange voice and may be frightened if it is loud or harsh. It is moved by music, and likes soft singing. It can feel pain more acutely.

**Reflexes.**—Saliva begins to flow freely at three months, and the baby dribbles and blows bubbles and will require a bib. By this age the baby can keep itself warm; it is not necessary to put on so many clothes in cold weather, and hot weather is less trying. The baby can push the bedclothes away if it is too hot, but it will not know how to pull them up over itself again. The time of the sun- and air-bath can be gradually prolonged at this age to half an hour daily (15 minutes front and 15 minutes back).

**Movements and muscular control.**—Its movements begin to be more vigorous and sustained; it can hold its head up well and uses its hands to clutch at what it sees, even if out of reach. It watches its fingers, as it exercises and moves them about, and discovers its toes. It will find out how to roll over on to its back and later achieve the reverse action. It makes an effort to sit up, and will

practise gripping the sides of its cot. It tries its voice in a variety of tones. By the fourth or fifth month it begins to use consonants and can say "Da."

**Play and sleep.**—The baby is contented to lie by itself, watching its own hands and feet and using its voice. It is not asleep for such long spells and there are periods of half to one hour when it is awake. It does not add to its pleasure to be wheeled out, but in cold weather it should be provided with leggings and a thick wool jacket, so that it can lie and kick freely in the perambulator out of doors. It usually sleeps from sixteen to eighteen hours in the twenty-four; in the day it sleeps most soundly after the first and second feeds and the bath. It may be put down on a blanket to roll and kick on the floor for periods of about twenty minutes, a good time being before the bath and again before the evening wash. It should never, after the age of three months, be put on the bed, as it may roll off. Woollen knickers and knee-length frocks should be provided for day wear.

**Emotions.**—By three months the baby has become increasingly sociable and affectionate, and can smile, coo, crow, and laugh. One of its main impulses is to clutch things and convey them to its mouth, and by the fifth month, when the teeth are imminent, it begins to bite everything within reach. It should be provided with a bone ring or rubber bone, which should be kept clean and attached by a ribbon to its clothing or cot so that it does not fall on the floor.

**Separate bedroom for the baby.**—The baby's powers of observation develop very rapidly and if it is possible it should have a room to itself, or share only with another child, so that it may obtain a long undisturbed night's rest. If it must sleep in the nurse's or parents' room, they should take care not to rouse it by noise or movement or by having a light shining on it, as it sleeps.

#### THE BABY OF SIX MONTHS TO NINE MONTHS OLD

After six months of age, the baby grows rapidly in length and is not so fat. There is a good growth of hair except at



the back of the head. During the sixth or seventh month it is usual for the first two teeth, lower central incisors, to be cut, but they may not appear until the ninth month when the upper incisors appear also. Early teething is not a special sign of health. Many babies cut their teeth with no disturbance of any kind, but there are generally some signs of irritation for a day or so before the teeth come through, such as wakefulness, bad temper, or attacks of crying, and loss of appetite with increased thirst for water is usual. The baby must be humoured and carefully managed at these periods, when it is more liable to catch colds or develop any illness.

**Movements and muscular control.**—The baby is a great deal more active and can pull itself up to a sitting position. It now sits up in the perambulator and is very pleased with its accomplishments, but it is important not to let it get overtired, and tactful handling is necessary. A pram coat of cloth, and also a cap will be necessary in cold weather, as well as leggings. A safety strap, to keep it from falling out, must be carefully adjusted to allow it scope for movement and not constrict its chest or arms. For indoors a woolly, long-sleeved jacket will have to be slipped on when it sits up in bed. Some babies begin to kneel and stand up before they are nine months old and some even walk at eight months. Now is the time to change over to a cot, if a cradle has been used before, in case the baby falls out. If it has reached the stage of trying to stand or of crawling, a play-pen is very useful.

**Speech.**—The baby begins to say “ma” and “ga” as well as “da,” gradually using other consonants. If it is talked to a great deal its speech develops much more quickly. It makes efforts to sing.

**Sleep and play.**—A baby of nine or ten months should sleep not less than sixteen hours out of the twenty-four. It usually sleeps twelve at night, one or two after the first feed, two or three during the morning and one or two in the afternoon. Babies vary very considerably in the amount of sleep they require, but at this stage they cannot have too much. It is

good for the baby to lie down part of the time it is awake, but its freedom should not be restricted until it is time for it to go to sleep, when firm tucking up may prevent it from keeping itself awake by needless fidgeting.

**Toys.**—A baby of over six months begins to be interested in toys. It should be given the opportunity to handle and examine objects of every variety. Many household objects are as good as bought toys. It is becoming sociable, unless it has been kept aloof from people, and this friendliness is most marked towards other babies and animals, and includes affection for toy animals and dolls.

**Biting.**—At the time the baby cuts its first teeth it takes to biting, and often begins to bite the breast. This is a normal and important stage in its emotional development, which soon passes if the mother handles it gently. It is essential that it should not be checked roughly. The mother should not show annoyance or severity but should deal with the situation kindly, only withdrawing the breast very gently if the biting actually hurts.

**Masturbation.**—Most babies masturbate from time to time, that is they play with their genital organs in various ways. The habit usually begins around the age of six months and goes on till the child is about five years old, gradually becoming less noticeable as it grows older. The wisest attitude on the part of the parents and nurse is friendly unconcern. The habit is harmless and necessary to normal development.

**Alterations in routine for the baby's day from six months to nine months.**

- 6 a.m. feed. Sleep in cradle (or cot after seven months) or out in perambulator after this feed. It may wake some time before the bath time at 9.30 and play.
- 10 a.m. feed. The baby should sleep out-of-doors after this feed, but will probably wake before the next and is best left to play by itself.
- 2 p.m. feed. After this feed it is best to wheel the baby out if it is to be taken out in the perambulator, but it can be left in the perambulator in the garden.

- 5.30 p.m. An evening bath, instead of a wash, is best introduced as soon as the baby begins crawling sufficiently to make itself dirty. It is then merely washed in the morning.
- 6 p.m. feed. After this feed it should be put to bed for the night.
- 10 p.m. feed. For this feed the baby is merely taken up and changed and fed and changed again if necessary.

### THE BABY OF NINE MONTHS TO ONE YEAR OLD

Between nine and twelve months growth proceeds steadily, but the weight does not increase at such a steady pace owing to the varying amount of exercise the baby takes and the periods of teething, when the appetite is smaller.

**Teeth.**—Further teeth are cut in pairs so that by a year there are six to twelve: the upper and lower incisors, followed by the four first molars (double teeth), though generally the latter are not cut till a month or two later. At eighteen months the four canines are cut, making sixteen teeth. Finally, between the age of two years and two-and-a-half, the four second molars appear behind the first, making twenty teeth in all.

**Speech.**—The baby tends to speak in repeated monosyllables such as, “dada, mama,” or “aga aga, aba, aba,” and “kna kna.” It chuckles, laughs, and may sing in imitation several consecutive notes. It calls out to summon attention, and objects in angry tones to anything that displeases it. It talks in modulated accents to toys and animals and other babies, imitating the speech of those around it, and may say short names.

**Movements and activities (Muscular control).**—The baby can now hold firmly with its hands and passes objects from hand to hand. It picks things up with finger and thumb and between its feet. Its arms are strong enough for it to hold on to chairs or railings and pull itself up. It may even climb over the side of an armchair in which it has been placed. It can roll over, kneel, and crawl rapidly after things it wants; it may walk alone or with support. A baby may walk at any time from eight

months to eighteen months of age. It is not necessarily a sign of backwardness if it does not walk until the age of eighteen months, nor is it necessarily an advantage for it to walk at an earlier age, and it is never advisable to urge the baby to take steps beyond its own inclination.

At a year old a baby has reached the stage of definitely setting out to reach places and take possession of objects it wishes to attain or hold.

Feeding.—The baby can take solid food, eating it from its hand or from a spoon offered to it. It may succeed in feeding itself from a spoon if it has had practice. It can drink easily from a cup, saucer, small gravy boat or jug, whichever it seems to prefer, and may be able to hold one of these by itself if light enough.

#### TRAINING AND MANAGEMENT

Management.—Be careful not to allow the baby to over-tire itself. One year is a fascinating age and there is danger that the baby may be urged to talk and walk more than is good for it. It should still be carried about in the arms and nursed and fed on the lap. A play-rug and pen, cot with railings, high chair and pram are all useful at many periods of the day, but be on the lookout to see if the baby seems tired of being left sitting or standing up. A baby may hold on to the railings of its pen, unwilling to let go, although crying with fatigue. After one year a little chair, to encourage the baby to rest during its play, is of value.

Alterations in routine of feeding after nine months.—Continue feeding four-hourly at 6, 10, 2, 6 and 10, until one year old, and give the solid food at 10 a.m., 2 p.m., and 6 p.m. feeds. It is still necessary to give a considerable amount of milk and is therefore desirable to space out the feeding times.

*The ten p.m. night feed* may be given up at any time after nine months of age, when the baby is taking its solid food and milk very well and seems prepared to sleep through the night from 6 p.m. to 6 a.m. It will be necessary to give a corresponding amount of extra milk at the other feeds.



By twelve months old, in any case, the 10 p.m. feed can usually be given up.

At one year old, the baby's meals can be arranged to correspond to the meal times of the rest of the family, to give it the opportunity to learn table manners by example and encourage it to eat a variety of food. A high chair with its own little table provides a safe place from which the baby can see everything that interests it, but as soon as it shows a desire to sit at the grown-up table, and can manage to sit on an ordinary chair with a cushion it should be allowed to do so. A small low chair and low table for the baby has the advantage of allowing it to get up and walk about occasionally during the meal, to relieve the strain of a fixed position, which is always extremely tiring to children.

**Care of the mouth and teeth.**—If the teeth are well spaced and the food is of the right type, including fruit, no food particles should cling around the gums and teeth; but a soft brush can be used gently last thing at night as an additional precaution. All the twenty teeth of the first dentition are fully formed and their enamel laid down before birth. If the diet and health of the mother are good, the baby's first teeth should be perfect.

**Shoes** are necessary to protect the feet when the baby begins to walk on rough ground. As long as it is warm enough, it is best for it to go barefoot so that its toes can spread out and grip the ground. When all the muscles of the foot and leg are allowed free exercise without shoes, the baby is able to obtain a natural balance for its whole body, and the bones and ligaments of the feet develop normally. The skin of the sole becomes tough and the baby will walk without discomfort on quite hard surfaces, but when the ground is especially rough a shoe made of soft leather or canvas will provide protection, while restricting the movement of the foot very little. Shoes with hard soles or stiff uppers are not good for a baby's feet.

**Choice of shoes.**—The shoes should be carefully chosen to allow room for movement and for growth; the tips of the

baby's big toes, when it is standing in the shoes, should be  $\frac{1}{4}$  inch from the tips of the shoes. The inner edge of the shoes should be straight. When the baby is older and begins to wear shoes with hard soles, that is from the age of 18 months to two years, the inner margin of the heels should be raised one-eighth inch to prevent the development of flat feet and knock-knees.

Sun-bathing.—The baby who has reached the stage of running about out of doors can have its sun-bath extended. But sun-bathing is stimulating and tiring, and half to one hour's direct sun at this age is enough. The child should not at any age be exposed to the direct *midday* sun of a summer's day.

Protection from danger.—The baby should be allowed freedom for exploring outside its pen, and the mother must take every precaution to avoid danger from such things as the fire, water, hot or cold, unprotected windows and staircases, and knives, scissors, etc. The age when the baby is first getting about is the most dangerous of its life, for babies are adventurous and develop rapidly, taking pleasure in their achievements and having little fear and no knowledge of distance, the force of gravity, or the danger of drowning or of swallowing such things as coins and pins.

It need not be guarded against such small accidents as knocks against furniture, as these are the means by which it learns the nature of the external world. But (1) the windows must be protected by wire or bars, (2) the fire by a guard fixed to the wall, (3) gas either by an "asylum" tap or a tap out of reach, and (4) the stairs by a gate until the child has learnt under supervision to climb safely up and down them. Electric points should be out of reach and all sharp instruments.

Whoever is in charge of the baby must never slacken vigilance and must know at any time where it is and what it is doing, and be prepared to remove dangerous objects before it has set its heart on them.

Pay the closest attention to the baby's healthy desires

and what pleases it. If it is happy it will flourish. Aim at giving scope for its new powers and be careful not to thwart it but rather divert its energies if these are tending in a dangerous direction.

**Training.**—It is natural for a baby to imitate and follow suggestions. If it is wisely handled, it will be guided by example and gentle direction, and a habit of obedience will arise naturally, as it does in young animals, without coercion or violence.

Commands and scoldings and exclamations are out of place. Smacking hurts and frightens the baby and reveals a harshness in the very person on whose constant sympathy and love it relies. Also the baby that is smacked itself adopts this way of treating others when it disapproves of them.

When it is necessary to interfere with its activities and check it in anything, this should be done deliberately and without any hesitation, but in a friendly, gentle way, giving a warning before using force and offering a simple explanation.

If the baby is allowed to do as much as it can for itself, it will become capable and independent. It learns how to do things by imitating its nurse and parents, and especially other small children. The society of its parents and of other children is of the utmost value for its education. There need be no fear that it will spoil the baby to play with it and show it affection. Affection is a necessity to it and the caresses and kisses of its parents and intimate relations are good for it. There is no reason either to exclude the baby from the mother's bed, at a reasonable time, such as when it first wakes in the morning.

Visitors, on the other hand, should never kiss the baby, as there is much greater chance of infection being conveyed by someone from outside the household. Any excitement they introduce is, moreover, of doubtful advantage to a young child.











